



# Quantitative Skills Workbook

for AQA AS and A Level Year 1

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# Teacher's Introduction

Advanced level Business students sometimes find the quantitative skills required for success in this area of study a challenge. This workbook has been produced with the intention of providing them with the opportunity to develop their skills, knowledge and understanding of the topics and concepts that require the demonstration of quantitative skills in a business context.

## Remember!

Always check the exam board website for new information, including changes to the specification and sample assessment material.

Each section within the workbook allows students to examine both theoretical notes and worked examples. They have the opportunity to complete exam-style questions that should assist in enhancing and consolidating their skills, knowledge and understanding. This should contribute to them being confident of applying these with success in a range of settings, including during lessons, and within homework tasks, independent learning activities and examinations.

The workbook includes **all** AS Business quantitative terms and concepts associated with the AQA exam board's qualification.

Sections 1 to 12 are organised as follows:

- **Part A: Specification Overview** – this provides an overview of the term or concept specified by the exam board and the understanding required.
- **Part B: Theoretical Overview** – a brief summary of the key points associated with the quantitative skill related term/concept.
- **Part C: Example** – detailed quantitative and written responses to exam-style questions.
- **Part D: Practice Activity** – each section includes two practice activities that allow students to demonstrate their understanding of the terms/concepts. Answers are provided at the end of the resource.

The AS Assessment Activities provide students with the chance to complete assessment activities related to their level of study. The assessments are presented in a similar format to the exam papers set by AQA. Mark schemes are provided.

## Free Updates!

Register your email address to receive any future free updates\* made to this resource or other Business resources your school has purchased, and details of any promotions for your subject.

\* resulting from minor specification changes, suggestions from teachers and peer reviews, or occasional errors reported by customers

Go to **[zzed.uk/freeupdates](https://www.zzed.uk/freeupdates)**

## Specification Summary

Students could be required to demonstrate their quantitative skills across a range of topics in the previous section. This will require them to develop the ability to calculate, use, understand and interpret of numerical related data, along with constructing and interpreting a range of graphs.

Quantitative skills will be assessed by at least level 2 mathematical skills, which will be reflected in overall AS marks. These may be assessed across the assessment objectives.

### AS and A Level Year 1

**Business Papers 1 and 2** could include assessment of the quantitative skills related to:

- The measurement and importance of profit
- Understanding management decision-making: decision trees
- Value of primary and secondary market research (market size, sales growth, market share)
- Marketing data
- Price and income elasticity of demand
- Operations data
- Inventory control charts
- Budgets
- Cash flow forecasting and analysis
- Break-even analysis
- Profitability analysis
- Human resource data

## Practice Papers Topics Coverage

Measurement and importance of profit
Understanding management decision-making: decision trees
Value of primary and secondary market research (market size, sales growth, market growth, and market share)
Marketing data
Price and income elasticity of demand
Operations data
Inventory control charts
Budgets
Cash flow forecasting and analysis
Break-even analysis
Profitability analysis
Human resource data

Note:

- **AS Paper 2** – Q8 does not appear in the above table, as it can be addressed using financial areas related to the AS specification

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# SECTION 1: THE MEASUREMENT AND IMPORTANCE OF PROFIT

## Part A: Specification Overview

The measurement and importance of profit is part of 3.1 What is business? section subsection 3.1.1, Understanding the nature and purpose of business. Students are required to understand the measurement of revenue (also known as turnover and sales), fixed costs, variable costs and profit/loss.

## Part B: Theoretical Overview

**Selling price** is the amount that a customer pays in order to receive a good or service.

**Revenue** is the total amount of money earned by a business from selling its goods or services.

$$\text{revenue} = \text{selling price per unit} \times \text{output}$$

**Cost** is the amount paid by a business for the materials/services used in the provision of a good or service, or the manufacturing of its goods.

**Fixed costs** are costs that do not change with the level of output. The business has to pay these costs whether a good or service is made or sold. These are also known as overheads or indirect costs.

$$\text{total fixed costs} = \text{all fixed costs added together}$$

**Variable costs** are costs that change with the level of output. If output increases the total variable costs will increase, while if output decreases the total variable costs will decrease. These are also known as direct costs.

$$\text{total variable costs} = \text{variable cost per unit} \times \text{output}$$

**Total costs** are all costs added together.

$$\text{total costs} = \text{total fixed costs} + \text{total variable costs}$$

**Profit/loss** is the amount of money left from revenue once all costs have been deducted. If the revenue is greater than the total costs the business has made a profit, while if it is lower it has made a loss.

$$\text{profit} = \text{revenue} - \text{total costs}$$

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## Part C: Example

Simone's Sandwich Shop is a small business based in Suffolk which supplies sandwiches to employees of local firms. They also sell to people who are passing by the shop and have the facilities to cater for meetings or events they are holding.

The business will serve approximately 80 customers each day who each spend about £3.75 on a sandwich. Each customer around £0.40 on raw materials, £0.70 on wages and £0.15 on energy. The weekly costs are £225 for rent, £25 insurance, £50 business rates and salary £325 for 5 days a week.

1. Calculate the revenue achieved by Simone's Sandwich Shop during one week.

$$£3.75 \times 80 \text{ (customers)} = £300 \text{ per day}$$

$$£300 \times 5 \text{ (days)} = £1500 \text{ per week}$$

2. Calculate the total variable costs per week of Simone's Sandwich Shop.

$$£0.40 \text{ (raw materials)} + £0.70 \text{ (wages)} + £0.15 \text{ (energy)} = £1.25 \text{ per customer}$$

$$£1.25 \times 80 \text{ (customers)} = £100$$

$$£100 \times 5 \text{ (days)} = £500 \text{ total variable costs per week}$$

3. Calculate the total fixed costs per week of Simone's Sandwich Shop.

$$£225 \text{ (rent)} + £25 \text{ (insurance)} + £50 \text{ (business rates)} + £325 \text{ (salary)} = £625$$

4. Calculate the total weekly costs of Simone's Sandwich Shop.

$$£625 \text{ (total fixed costs)} + £500 \text{ (total variable costs)} = £1,125 \text{ total costs}$$

5. Calculate the weekly profit or loss of Simone's Sandwich Shop.

$$£1,500 - £1,125 = £375 \text{ weekly profit}$$

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## Part D: Practice Activity

### Activity 1

Rose McGovern, a sixth-form Business Studies student, produced hand-crafted beaded jewellery as an enterprise business she ran with two other students. The group sold their items at local craft and trade fairs. This is slightly higher than other craft stalls that sell at the same price, with each piece of jewellery being a unique design.

A jewellery kit that includes all the items to make a range of beaded jewellery costs £1.00. Ten pieces of jewellery can be produced using this resource. Each one takes about two hours to make at £0.75 per hour. Each design has a Swarovski like crystal included that costs £0.20. The finished jewellery is sold in a jewellery box with coloured tissue paper which costs £0.50.

1. Calculate the added value for the jewellery.

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2. Explain **two** ways in which Rose's business added value.

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## Activity 2

A leading 16 GB computer tablet sells for \$499.00 in the USA. It has the following costs:

- Display/touchscreen – \$115.00
- Memory – \$24.75
- Battery – \$15.00
- Processor – \$14.00
- Box contents – \$5.00
- Cameras – \$11.00
- Other component costs – \$80.25
- Manufacturing cost – \$5.00<sup>1</sup>

1. Assuming that the promotion and distribution costs equate to 20% of the total selling price, calculate the added value for the computer tablet.

*Reminder:* calculate the promotion/distribution costs using:

$$\frac{\% \times \text{total manufacturing cost}}{100} = \$?$$

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2. In the first quarter of 2015 Apple had a 26.8% share of the global computer tablet market. List three different ways that Apple has added value to the iPad Air 2 during the manufacturing process.

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<sup>1</sup> <http://www.cnet.com/uk/news/apples-ipad-air-2-costs-275-to-358-to-make-teardown-reveals/>

<sup>2</sup> <http://www.macrumors.com/2015/04/30/idc-tablet-shipments-q1-2015/>



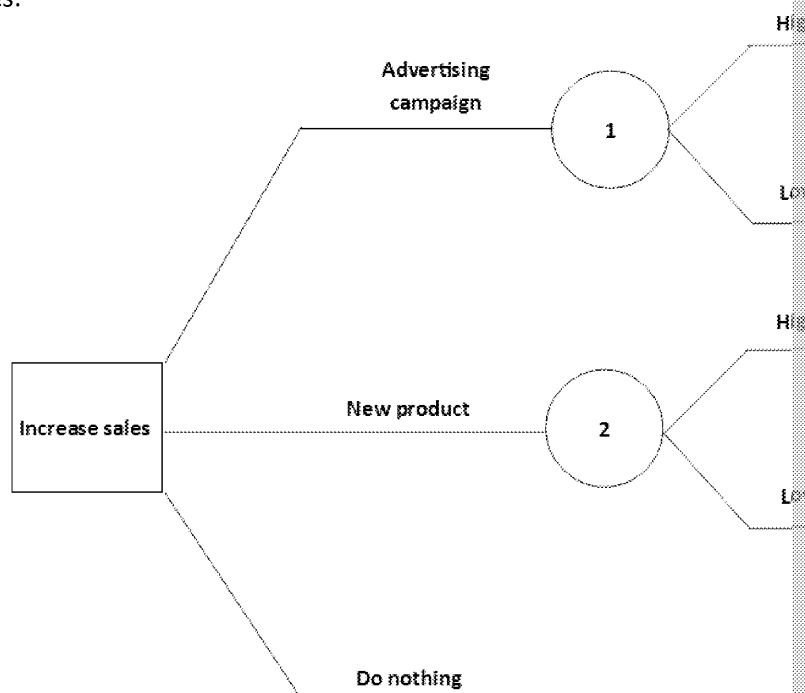
## SECTION 2: UNDERSTANDING MANAGEMENT DECISIONS DECISION TREES

### Part A: Specification Overview

The understanding and interpreting of decision trees is part of 3.2 Managers, lead section and appears within subsection 3.2.2, Understanding management decisions. You will be required to understand and interpret decision trees and calculate expected value and net gain.

### Part B: Theoretical Overview

A decision tree is a graphical model which represents the options available to a business when making a decision. The expected value of each option is identified, along with the probability of each outcome. A business can calculate the net gain associated with each option and use this understanding to decide which option it finally makes.



- The advertising campaign will cost £0.5m.
- Developing a new product will cost £1.5m.
- The **square** represents the decision to be made; how to increase sales.
- The **lines** (branches) coming from the square signify the choices available to increase its sales: launch an advertising campaign, launch a new product or do nothing. Do nothing should not automatically be dismissed, as sometimes doing nothing can be the best option.
- The **circle** (node) shows the outcomes of the choices available. The circles are numbered to make referencing to them easier for others to follow. For example, the outcomes for the advertising campaign can be found after circle 1. The potential outcome is high sales or low sales. The outcomes for launching a new product are found after circle 2.
- The **probability** of the outcome is listed beneath the relevant outcome line. For example, the probability of high sales from a new advertising campaign is 0.7, but there is a 0.3 probability of low sales. Probability is measured from 0 to 1. A probability of 0 (zero) indicates there is no chance of being achieved. A probability of 1 (one) suggests the outcome will definitely be achieved. For example, an advertising campaign provides a 70% chance of sales improving by £5m, while only improving by £2m. The same approach applies to all possible outcomes.

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## Expected value

The **expected value** is the anticipated financial outcome of each option, but adjusted for the probability of it occurring. The **expected value is calculated** for a circle as follows:

(first probability of an outcome X first expected financial benefit of an outcome) + (second probability of an outcome X second expected financial benefit of an outcome) + and so on ...

Advertising campaign:  $(£5m \times 0.7) + (£2m \times 0.3)$

$$£3.5m + £0.6 = \text{£4.1m}$$

The advertising campaign's expected value is £4.1m.

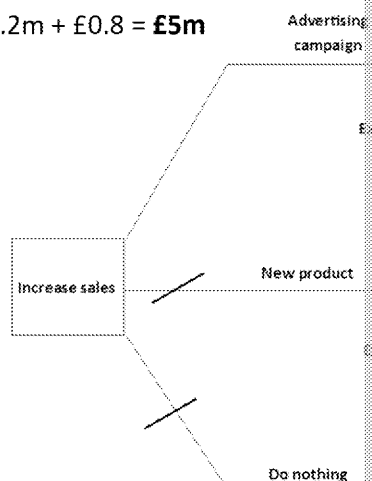
New product:  $(£7m \times 0.6) + (£2m \times 0.4)$

$$£4.2m + £0.8 = \text{£5m}$$

The new product's expected value is £5.0m.

## Net gain

Although the expected value for the new product is higher it does not mean this is preferable to the advertising campaign. The **net gain** has to be worked out. This is the expected value of the option available to the business less any costs associated with it.



Advertising campaign:  $£4.1m - £0.5m = \text{£3.6m}$

The net gain of the business choosing the advertising campaign is £3.6m.

New product:  $£5m - £1.5m = \text{£3.5m}$

The net gain of the new business launching a new product is £3.5m.

Out of the options available to the business it should **choose the advertising campaign** as it has the higher net gain.

It is clear on the diagram which option is chosen, as those not selected have a line through them.

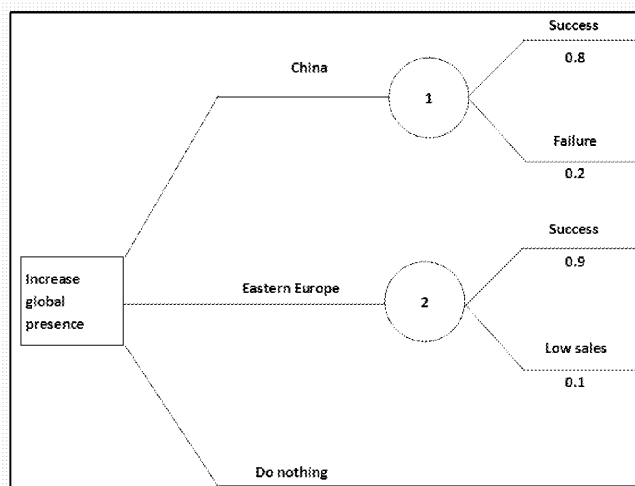
Advantages	Disadvantages
<ul style="list-style-type: none"> <li>As the diagram requires numerical considerations this encourages research, thereby enhancing the quality of the information used.</li> <li>It encourages managers to give careful consideration to the options available, rather than being focused on one idea.</li> <li>The method considers the risks of each option; therefore, the decision-maker can make an informed choice with the risks in mind.</li> </ul>	<ul style="list-style-type: none"> <li>The method focuses on quantitative data, therefore, qualitative factors such as a competitor's reaction or how employees will react are not considered.</li> <li>The probabilities are often subjective, so there is no guarantee of their accuracy.</li> <li>The decision tree can become complex if there are many outcomes that are known or if there are many outcomes that do not fall within the scope of the analysis.</li> <li>The diagrams may not always be the best way to represent decisions, which can sometimes be straightforward and simple.</li> </ul>

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### Part C: Example

Fanaway PLC is a multinational whose core business is producing fans for domestic use. It wants to increase its global presence and has three options available: launch its products in China, launch its products in Eastern Europe or choose to do nothing and keep things as they are. The cost of launching in China has been estimated at £2.5m. For Eastern Europe it is £1.5m. The marketing manager has set out the key information in the decision tree below.



1. Calculate the net gain for Fanaway PLC launching its products in China.

$$\begin{aligned}
 & (£11\text{m} \times 0.8) + (£1.5\text{m} \times 0.2) \\
 & £8.8\text{m} + £0.3\text{m} = £9.1\text{m expected value} \\
 & £9.1\text{m} - £2.5\text{m} = £6.6\text{m net gain}
 \end{aligned}$$

The option of launching in China has an anticipated net gain of £6.6m.

2. Calculate the net gain for Fanaway PLC launching its products in Eastern Europe.

$$\begin{aligned}
 & (£9\text{m} \times 0.9) + (£2.0\text{m} \times 0.1) \\
 & £8.1\text{m} + £0.2\text{m} = £8.3\text{m expected value} \\
 & £8.3\text{m} - £1.5\text{m} = £6.8\text{m net gain}
 \end{aligned}$$

The option of launching in Eastern Europe has an anticipated net gain of £6.8m.

3. Advise the business of which option it should take.

Based purely on the decision tree the business should launch its product range in Eastern Europe as this provides a higher net gain than China at £0.2m more.

4. Advise the business of any other information it should consider before making its decision.

Although launching in Eastern Europe is quantitatively more advantageous, the business should not ignore key qualitative factors. As the business launches into a new market, it should fully understand the dynamics of it, including any cultural differences which may affect the marketing strategy used. It must consider the extent to which its marketing approach in the new market and has the ability to adapt its marketing approach to cater for the needs of the market. If a high level of expertise is not available or the business cannot source it from elsewhere, the decision tree are not likely to be realistic for this market.

The business also needs to consider the economic climate in Eastern Europe, particularly Brexit. If it is subject to rapid change, has this been reflected in the decision tree? If not, the estimates might be unreliable and the business would do best to undertake further research to be undertaken to allow for informed decision-making.

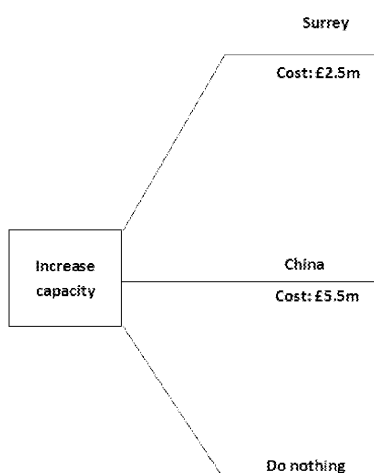
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## Part D: Practice Activity

### Activity 3

Rockwell Electronics Ltd designs, produces and distributes computer games for a range of gaming formats. The business's innovative games have allowed it to differentiate itself in a highly competitive market, which has allowed it to price its product at a premium in comparison to competitors. The global gaming market is expected to be worth \$99.6bn by 2016 with the mobile gaming market expected to be valued at \$52.5bn by 2019.<sup>3</sup> The business wishes to capitalise on the anticipated global growth, but is undecided on which option is the best one for it to take. It is considering setting up a design, production and distribution operation in China, as the Asia-Pacific market is expected to dominate the global mobile market<sup>4</sup> and the business would be best placed to serve the market effectively. The other option is to expand its capacity in the UK by setting up a design, production and distribution operation in Surrey. Either option would allow the business to meet the expected demand. The Collymore, has consulted staff and produced a decision tree for the options available.



1. Calculate the net gains for the two options available to Rockwell Electronics Ltd.

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2. Based on your answer to Q1, which option should the business choose to increase its capacity?

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<sup>3</sup> <http://marketrealist.com/2016/06/how-is-the-digital-gaming-market-growing/>

<sup>4</sup> <http://marketrealist.com/2016/06/how-is-the-digital-gaming-market-growing/>

3. Identify and explain **two qualitative factors** the business should consider before making a decision.

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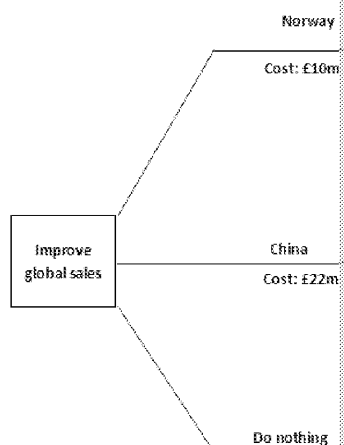
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## Activity 4

*In 2015, electric car sales were 1.15m, which represented a 70% growth in comparison to 2014. The US, China and Netherlands accounted for 70% of all the global sales. This has been partly due to the electric public charging infrastructure vastly improving within these countries and having greater availability.<sup>5</sup>*

*Rosebud Vehicles Ltd designs and produces electric cars which are sold globally. It has experienced significant growth in both the US and Chinese markets. Norway now has a significant presence for electric car sales. The business has a dilemma. It wants to increase its global presence, but can only focus on one option; launch the products in Norway or increase its cost in China. The manager has put together a decision tree to reflect these options.*



1. Calculate the net gains for the two options available to Rosebud Vehicles Ltd

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<sup>5</sup> <https://www.carbonbrief.org/iea-there-are-now-more-than-one-million-electric-cars-on-the-worlds-roads>

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## SECTION 3: VALUE OF PRIMARY AND SECONDARY MARKET RESEARCH (MARKET SIZE, SALES GROWTH, MARKET GROWTH, AND MARKET SHARE)

### Part A: Specification Overview

The value of primary and secondary market research is part of 3.3 Decision-making and performance section and appears within subsection 3.3.2, Understanding markets. It is required to calculate market and sales growth, market share and size.

### Part B: Theoretical Overview

A **market** is a place where buyers and sellers come together to exchange goods and services. Tony&Guy is an example of a service retailer operating in the hairdressing market. An example of a good provided in the mobile phone market.

**Market size** is the value of a market based on the total income or total quantity of businesses which operate within it over a specified period of time. The market size is calculated by adding up all the income or unit sales of all products or companies within the market. The market size in 2014 was £1.1 billion based on value and 345 million litres based on volume.

**Sales volume** refers to the quantity of products sold or services provided by a business over a specified period of time. If the sales volume is based on all products sold or all services provided by a business then this equates to market size (see above). For the year ending June 2014 the sales volume was 16.9 million kilograms.<sup>7</sup>

**Market share** refers to the proportion (percentage) of the total market which is sold by a specific product. For example, in 2014, Unilever, the manufacturer of well-known ice cream brands B&J and Jerry's and Cornetto, had a 37% share of the UK ice cream market.<sup>8</sup> It is calculated as follows:

$$\frac{\text{sales of one product or business}}{\text{total market sales}} \times 100 = \%$$

**Sales growth** refers to the percentage change in sales either based on income or volume over a specified period of time. For example, Magnum ice cream sales increased by 12% in June 2014 in comparison to the previous year. It is calculated as follows either using income data:

$$\frac{\text{current sales for a specific product or business} - \text{previous period sales for specific product or business}}{\text{previous period sales for a specific product or business}} \times 100 = \%$$

**Market growth** refers to the percentage change in the total market based either on income or volume of businesses or all products within the market over a specified period of time. For example, in February 2015 the UK ice cream tub market based on volume declined by 4.9%.<sup>9</sup> It is calculated as follows, using either volume data or income data:

$$\frac{\text{current total market sales} - \text{previous period total market sales}}{\text{previous period total market sales}} \times 100 = \%$$

<sup>6</sup> <http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/11744608/Heres-the-scoop-China-is-the-biggest-market.html>

<sup>7</sup> <http://www.thegrocer.co.uk/reports/digital-features/ice-cream-report-2014/magnum-going-great-guns-in-ice-cream-report-2014>

<sup>8</sup> <http://www.euromonitor.com/ice-cream-in-the-united-kingdom/report>

<sup>9</sup> <http://www.thegrocer.co.uk/reports/digital-features/ice-cream-report-2015/family-tubs-left-on-shelf-as-premium>

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## Part C: Example

The UK supermarket sector was valued at £26,407 million for the 12-week period ending March 2014. Tesco's market share of the sector was 28.7%, Asda 17.0% and Sainsbury's 16.8%. Waitrose's sales were valued at £1,383 million and £1,318 million for the same period ending March 2014 and March 2015.

1. Calculate the market size of the supermarket industry for the 12-week period ending March 2014.

$$£26,407 \text{ million} - £292 \text{ million} = £26,115 \text{ million}$$

2. Calculate the market growth of the supermarket industry between the 12-week periods ending March 2014 and March 2015.

$$\frac{292}{26,115} \times 100 = 1.1\%$$

The supermarket industry grew by 1.1% between the 12-week periods ending March 2014 and March 2015.

3. Calculate the value of the supermarket industry supplied by Tesco for the 12-week period ending March 2015.

$$\frac{26,407 \times 28.7}{100} = £7,759 \text{ million}$$

4. Calculate Waitrose's market share of the supermarket industry for the 12-week period ending March 2014.

$$\frac{1,383}{26,407} \times 100 = 5.2\%$$

5. Calculate Waitrose's sales growth between the 12-week periods ending March 2014 and March 2015.

$$1,383 - 1,318 = 65$$

$$\frac{65}{1,318} \times 100 = 4.9\%$$

Waitrose's sales based on income grew by 4.9% between the 12-week periods ending March 2014 and March 2015.

6. Which supermarket would be considered most dominant out of those listed?

Tesco would be considered the dominant supermarket as it had the highest market share by at least 23.5% (28.7% Tesco - 5.2% Waitrose).

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<sup>10</sup> <http://www.univeguk.co.uk/blog>



## Part D: Practice Activity

### Activity 5

Worldwide mobile phone sales and market share 2015 and 2014

Company	2015		Unit sales 2014
	Unit sales ('000)	Market share (%)	
Samsung	320,219.7		307,590.0
Apple	225,850.6	15.9	191,420.0
Huawei	104,094.7	7.3	68,080.0
Lenovo	72,748.2	5.1	81,410.0
Xiaomi	65,618.6	4.6	56,520.0
Others	635,368.5	44.6	539,600.0
<b>Total</b>		<b>100</b>	

Use the table above to complete the following questions.

1. What was the size of the mobile phone market in 2014?

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2. What was the size of the mobile phone market in 2015?

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3. Calculate the market growth of the mobile phone market between 2015 and 2014.

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4. Calculate the market share of Apple in 2014 and Samsung in 2015.

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<sup>11</sup> <http://www.gartner.com/newsroom/id/3215217>

5. What has happened to the sales growth of Apple and Samsung between 2015 and 2019?

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6. Using the calculations completed in Questions 4 and 5 and any other relevant information, which firms do you consider to be successful, and why?

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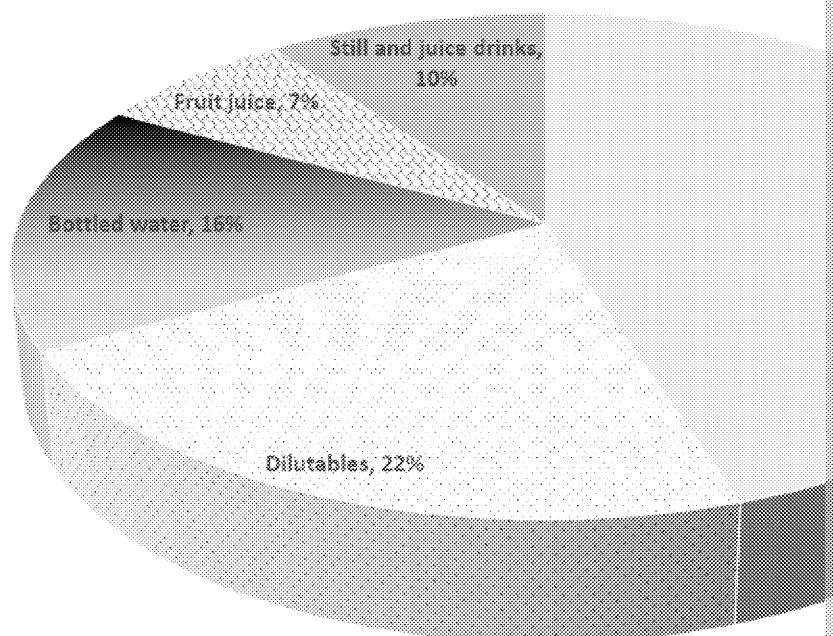
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### Activity 6

In 2013, the UK soft drinks market comprised carbonated, dilutable, bottled water drinks. Fruit juice drinks are 100% fruit juice, while still and juice drinks contain 99%. 14,520 million litres were consumed at a value of £1.07 per litre. The 2013 consumption grew by 2.0% on the previous year. The market increased in value by 4.1% in comparison to 2012.

The following chart represents the **UK soft drinks consumption by sector for 2013**



In 2013, the UK consumption of bottled water was 2,360 million litres, while in 2012 it was 2,300 million litres.

1. Calculate the size of the UK soft drinks market for 2013 based on value.

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2. Calculate the size of the UK soft drinks market for 2012 based on litres.

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<sup>12</sup> [http://www.britishsoftdrinks.com/write/mediauploads/bsda\\_annual\\_report\\_2014.pdf](http://www.britishsoftdrinks.com/write/mediauploads/bsda_annual_report_2014.pdf)

3. Calculate the size of the UK soft drinks market for 2012 based on value.

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4. Calculate the value of the UK carbonated drinks market for 2013 based on co

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5. Calculate the market growth of the UK bottled water market between 2012 a

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## SECTION 4: MARKETING DATA

### Part A: Specification Overview

The interpretation of marketing data is part of 3.3 Decision-making to improve marketing and appears within subsection 3.3.2, Understanding markets and customers. Students study positive correlation, negative correlation and strength of relationship, along with the concept of confidence intervals and extrapolation.

### Part B: Theoretical Overview

A business will review a range of internal and external market-related data, including:

- revenue for different products
- revenue across different market segments
- competitors' revenues
- advertising expenditure across different products and its impact
- market share
- competitors' market share
- product demand at different price levels
- customer response to new products or product modifications

Analysing marketing data allows the business to understand the effectiveness of its marketing. It can recognise its strengths, but also those areas which require development, underperformance or increasing competition. This can lead to the business identifying appropriate new strategies where necessary and implementing them.

#### Correlation

Correlation is a statistical measure that looks at the relationship between two variables. For example, ice cream sales and temperature.

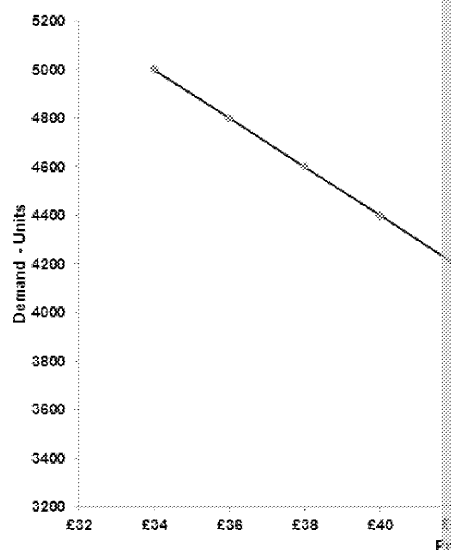
Correlation is measured between **-1 and +1**.

#### Negative correlation

The chart shows that at £34, 5,000 units of the product are sold, but at £50 the amount decreases to 3,400 units. This indicates a **negative relationship** between the price of the product and demand, because as the price goes up the demand for the product declines. If the business's objective is to sell more units it knows it will not be achieved through increasing the price. It should decrease the price.

The extent to which one variable will decrease as the other increases depends on the strength of the negative correlation is. If it is **-0.1 coefficient**

**there is a weak negative correlation.** There is a relationship between the two variables, but a small change in one variable means that an increase in one of them will result in a minor decrease in the other. **-0.9 there is a strong negative correlation**, which means an increase in one of the variables results in a significant decrease in the other.



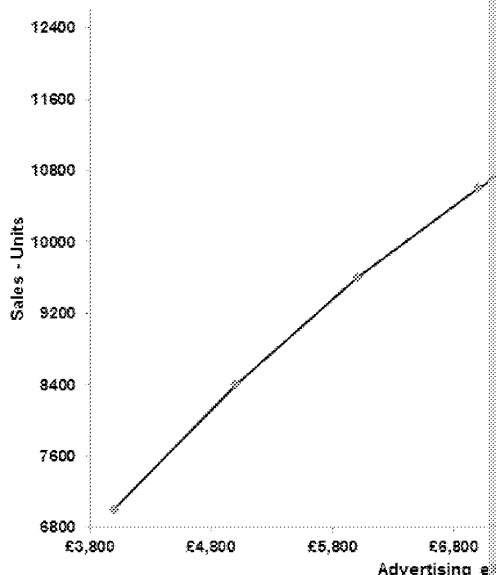
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### Positive correlation

£4,000 of advertising produces sales of 7,000 units, but at approximately £9,000 sales increase to 12,000 units. This indicates a **positive relationship** between advertising expenditure and demand, as the more spent on advertising the greater the demand. If the business wishes to increase demand, it knows that increased advertising can help to achieve this objective.



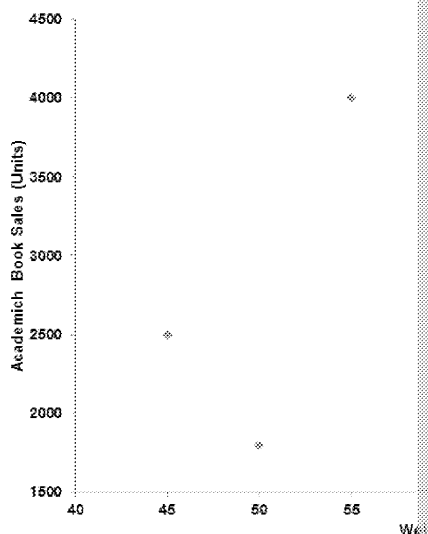
The extent to which one variable will increase in relation to the other increasing will depend on how strong the positive correlation is. If it is **0.9 coefficient there is a strong**

**positive correlation**. There is a strong relationship between the two variables, where a small change in one of them will result in a major change in the other. If the correlation coefficient is **0.2 coefficient there is a weak** **positive correlation**, which means an increase in one of them will lead to a minor increase in the other.

### Zero correlation

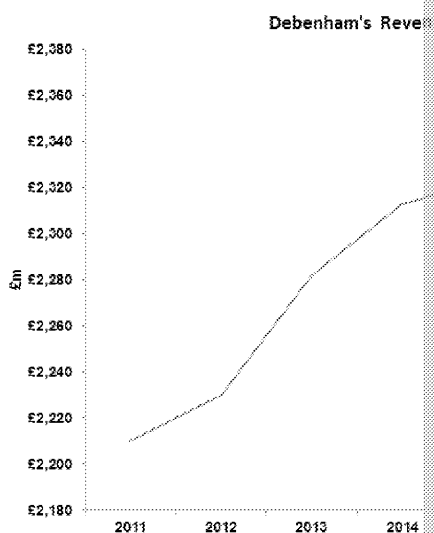
A **zero correlation** means there is no identifiable relationship between two variables.

There appears to be no relationship between the weight of a customer and the number of academic books they buy. Customers who weigh 45 kg buy on average 2,500 books, while those who weigh 50 kg buy approximately 1,800 and those who weigh 65 kg or 70 kg buy 2,000 books. There is no clear link between the two variables.



### Extrapolation<sup>13</sup>

Extrapolation involves using past data to identify a trend and project it forward to make predictions about future trends, usually sales, customer numbers, etc. There is an assumption that future trends will continue to follow past ones, as conditions are anticipated to remain relatively unchanged. If the market is subject to frequent change extrapolation is unlikely to be a useful tool to the business, as it will be difficult to predict future trends.



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<sup>13</sup> [http://media.corporate-ir.net/media\\_files/IROL/19/196805/agm2015/2015\\_Annual\\_Report.pdf](http://media.corporate-ir.net/media_files/IROL/19/196805/agm2015/2015_Annual_Report.pdf)

It is still possible to predict future sales, if a future change is known, as it allows the business to prepare for it.

Future changes do not make the use of extrapolation redundant, if they are known. For example, a change in the income tax rate, as it gives the business time to investigate the impact.

The dotted line represents the extrapolation of revenue from 2016 to 2018. This is based on the existing sales trend line. The line has been extrapolated to indicate continued sales at the same rate. However, this can be influenced by numerous factors, such as a perceived slow down in the economy; therefore, the extrapolated line could be drawn with a lower rate of sales growth.

Assuming all other factors remain the same it is predicted that the department store will generate revenue of nearly £2,360m by 2018. However, changing market conditions, such as increased competition, or the state of the economy, such as increasing unemployment, could influence the accuracy of the prediction.

## Confidence levels and intervals

A **confidence level** indicates how confident a researcher is that the market research findings are representative of the whole population.

The confidence level is presented as a percentage, which shows how certain the researcher is that the findings would give an answer that lies within the confidence interval (see below). If the confidence level is 95%, that means that the research findings can be relied upon and are representative of the whole population 19 times out of 20. If the confidence level is 55% it means that the findings represent the population 11 times out of 20. The result of the sample will be correct 55% of the time. Researchers would want the confidence level to be as near to 100% as possible, but 95% is commonly used.

The confidence level is influenced by the sample size and the sampling method chosen. The larger the sample the more likely the findings will represent the population.

A **confidence interval** is the possible range of outcomes for a given confidence level. For example, the confidence interval (range) for the demand of a product at a 95% confidence level is 55,500 units to 69,500 units. If the confidence interval is smaller the confidence level will be lower, as the researcher is less certain the researchers will be of the findings accurately predicting the outcome. For example, a confidence level for demand between 55,500 and 69,500 may decline to 65%.

The former confidence interval varied by 25,000 units (75,000 units – 50,000 units). The latter confidence interval varied by 14,000 units (69,500 units – 55,500 units). The larger the range of outcomes the more likely the findings will be accurate, thus resulting in a higher confidence level.

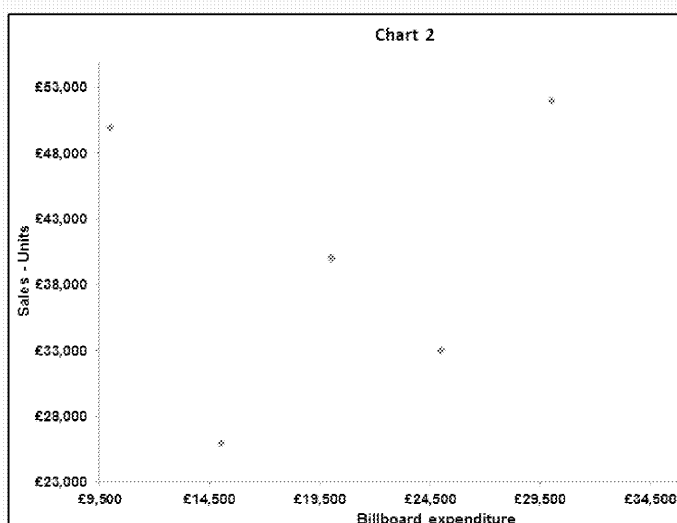
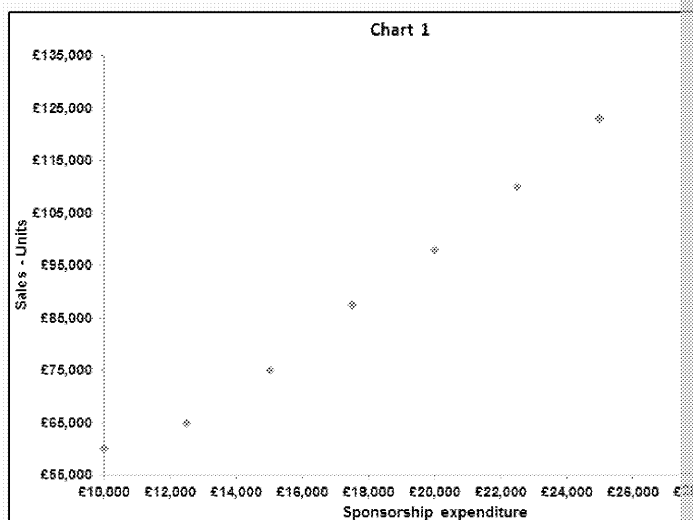
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## Part C: Example

Vibrant is a range of upmarket soft drinks that are produced by Rochelle Food Ltd. via supermarkets and independent retailers. The market is very competitive and in order to succeed, the company has used a variety of strategies to increase sales. The following marketing data has been collected by the marketing director who needs to discuss with the board future marketing strategies.

Each chart shows the units sold when the different market strategy methods were used and the expenditure.



Lastly, the correlation coefficient for radio advertising expenditure and unit sales is 0.85.

1. What type of correlation relates to chart 1, and why?

Chart 1 demonstrates a positive correlation between units sold and sponsorship expenditure. As sponsorship expenditure increases, so do the units sold, thus indicating a positive correlation.

2. What type of correlation relates to chart 2, and why?

Chart 2 indicates a zero correlation relationship between the units sold and billboard expenditure. There appears to be no identifiable relationship between the amount spent on this and the change in sales.

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### 3. Explain the correlation of a product with a coefficient $-0.01$

This indicates there is a negative correlation relationship between radio advertising expenditure increases this leads to a decrease in the quantity of the coefficient is close to zero this confirms there is little relationship between the impact of any change is quite minor.

### 4. Discuss the implications of these correlations for future Vibrant promotion strategies

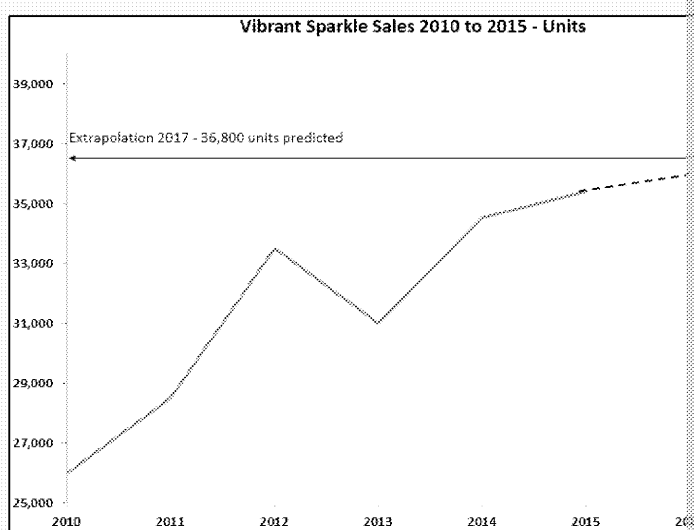
The positive correlation between sponsorship expenditure and sales suggests maintain this form of promotion strategy, as the increased sales improves the rate of increase appears to decline for any expenditure above £25,000, be wise not to spend above this amount.

Billboard expenditure is not an efficient use of the business's funds, as this has a zero relationship, thus indicating there is no relationship between the two better used on other areas of the business which would have a positive impact.

The negative correlation of radio advertising and sales indicates that the business should not pursue this form of promotion to increase sales. However, as the coefficient is virtually zero, that any impact will be virtually negligible, and thus should not be pursued.

Overall, the business should only continue with sponsorship, as this is the only method that appears to have a positive impact on sales. The other methods demonstrate little. However, this does not prevent the business from considering other promotion strategies to sponsorship.

### 5. The chart below shows the sales of Vibrant Sparkle, a carbonated water drink. Use the chart to extrapolate the sales line to predict the unit sales for 2017.



----- denotes extrapolation

36,800 unit sales are predicted for Vibrant Sparkle in 2017.

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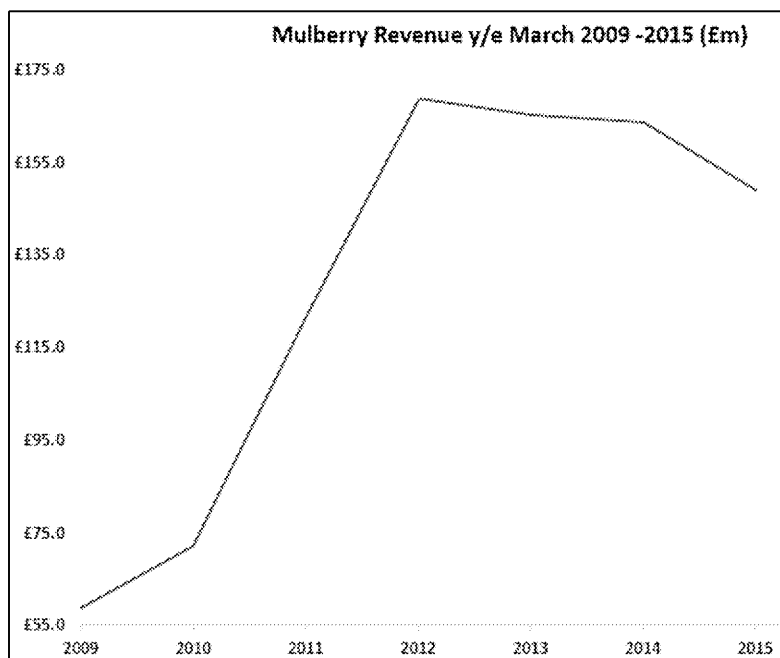
## Part D: Practice Activity

### Activity 7

Mulberry is an international luxury brand that specialises in women's and men's accessories, including handbags, shoes, datebooks and leather-bound Filofaxes. Its product range also includes clothing and homeware.

Its operations are predominantly based in the UK. It sells through its own retail outlets and through department stores such as John Lewis.

While the Asian market was experiencing an extensive period of growth, and despite the global financial crisis, Mulberry experienced significantly increasing revenue and profits. However, the recent downturn in the Asian market, in particular China, has contributed to declining revenue.<sup>14</sup>



1. Explain the type of relationship between Mulberry's revenue and the disposal of its products to its customers.

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<sup>14</sup> <http://www.mulberry.com/investor-relations/reports> and [http://www.mulberry.com/plugins/investor\\_relations](http://www.mulberry.com/plugins/investor_relations)

2. Using the chart on the previous page, predict Mulberry's revenue for the year 2011. This will require you to extrapolate the revenue line first.

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3. Discuss whether Mulberry will be satisfied with the predicted revenue for 2011.

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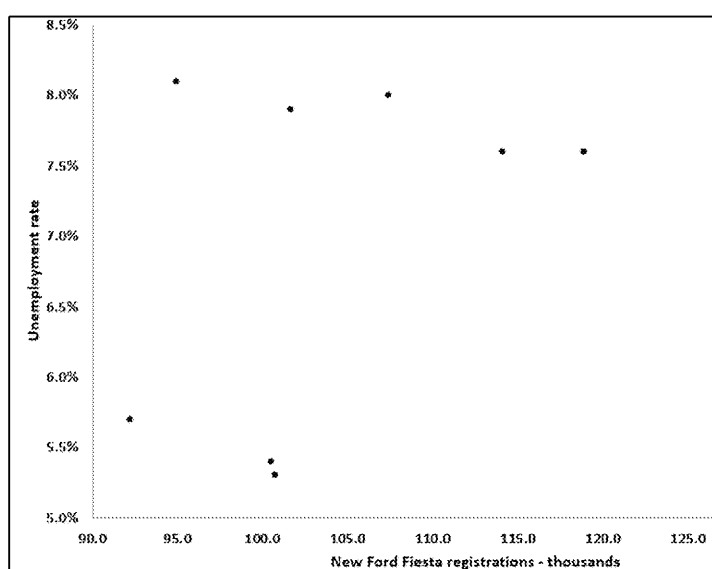
# Activity 8

As purchasing a car can be a significant expense for a consumer it is often presumed that car sales are sensitive to changes in the economic climate.

The Ford Fiesta for a number of years has had the highest UK sales for new-registered cars, with over 133,000 such vehicles (*source*: <https://www.gov.uk/government/statistics/new-cars-registered-in-the-uk>). This is a significant improvement on 2006, when Ford Fiesta new registrations were just over 90,000.

Between 2006 and 2015, the unemployment rate, the percentage of the total labour force that is unemployed, has at its worst been 8.1% and at its best 5.3%.

The following chart looks at the Ford Fiesta's UK new car registrations in comparison with the UK unemployment rate.<sup>15</sup>



1. Identify and explain the type of correlation that exists between the UK unemployment rate and the registration of new Ford Fiesta cars in the UK.

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<sup>15</sup> VEH0261 table – <https://www.gov.uk/government/statistical-data-sets/veh02-licensed-cars>, <http://www.statistics.gov.uk/visualisation/chartbuilder>

2. Discuss the implications to Ford of the correlation which exists between the U  
Fiesta new car registrations.

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## SECTION 5: PRICE AND INCOME ELASTICITY

### Part A: Specification Overview

The interpretation of price and income elasticity of demand to marketing decisions is part of 3.3 Decision-making to improve marketing performance section and 3.3.2, Understanding markets and customers. Students are required to interpret price demand and be able to analyse the impact of changes in price and income revenue. They are able to calculate these, **but the calculation process has been included to aid students**.

### Part B: Theoretical Overview

Elasticity of demand is the measurement of how responsive customer demand is to a variable, i.e. price or income.

#### Price elasticity of demand (PED)

This measures how responsive customer demand is to a change in price of a product. The principle is that if **price increases demand for a product will fall**, but if **price decreases demand will increase**. It is calculated by:

$$\frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

Calculating the percentage change is completed as follows:

$$\frac{\text{change in demand (actual number)} \times 100}{\text{original demand}}$$

The above process can be used to find out the percentage change in price or income. Price has to be used instead of demand, depending on which calculation is to be completed.

Ignore any negative in the price elasticity of demand coefficient, answer to the elasticity. For example, if it is -1.5, treat it as 1.5.

The **value of knowing the PED coefficient** is that it can be used to determine the effect of a change in price.

If the coefficient is **greater than 1** the product is **price elastic**. A small change in price will lead to a larger percentage change in demand. If the business wishes to **increase revenue** and the product is price elastic it should **not increase price**, as this will lead to a larger percentage fall in demand than the percentage increase in price, which will **result in revenue decreasing**. It should **decrease price**, as this will lead to a larger percentage increase in demand, than the percentage decrease in price, **resulting in revenue increasing**.

If the coefficient is **less than 1** the product is **price inelastic**. The demand for the product is not very responsive to a change in price. A small change in price will lead to a smaller percentage change in demand. If the business wishes to **increase revenue** and the product is price inelastic it should **increase price**, as this will lead to a smaller percentage fall in demand than the percentage increase in price, which will **result in revenue increasing**. It should not **decrease price**, as this will lead to a smaller percentage increase in demand, than the percentage decrease in price, **resulting in revenue decreasing**.

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The following worked example demonstrates the process followed to calculate the

*A motorcycle retailer has a PED of -1.6 for a Honda motorbike. The selling price per motorbike is £13,500. The demand for this price is 50 motorbikes a year. What will be the effect on revenue if the selling price is reduced by 10%?*

Thus, in this scenario, if price is reduced by 10%:

- Demand will increase by 1.6 (ignore the negative)  $\times$  10%, i.e. **16%**
- Demand will, therefore, **rise by 8** ( $50 \times 16\%$ ) to **58** ( $50 + 8$ ) motorbikes a year
- Revenue at the higher selling price is **£750,000** ( $50 \times £15,000$ )
- Revenue at the reduced selling price is **£783,000** ( $58 \times £13,500$ )
- Revenue will be **£33,000 higher** ( $£783,000 - £750,000$ ) if the selling price is reduced by 10%

The price elasticity of demand can be influenced by a number of factors, including

- **Availability of substitutes** – if consumers perceive a product similar to another, they are more likely to switch to an alternative if their usual product's price increases. The greater the availability of substitutes, the more price elastic the demand is for the product.
- **Differentiation** – if customers consider the product to be unique, a price increase will result in a significant fall in demand, if any, as they will believe there is not a suitable alternative. A product with a high level of differentiation results in demand for the product being more price inelastic.
- **Brand loyalty** – a product with a strong brand image may acquire a significant following. The greater the level of brand loyalty, the more price inelastic demand is for the product.
- **Ability to switch to other products** – the ease of which a customer can change from one product to another can influence the price elasticity of demand. Some contracts have customers locked into a product for a period of time, such as a mobile phone or gym membership contract. To switch to another product results in penalty charges being incurred by the customer for ending the contract. The more difficult it is to switch to an alternative, the more price inelastic the demand for the product.
- **Types of product** – necessity products which are essential for the survival of the consumer, such as bread, are likely to be price inelastic. The demand is likely to remain relatively stable even if the price increases. Products that are not essential for survival, such as a holiday, are more price elastic.

### Income elasticity of demand (YED)

This measures the responsiveness of demand to a change in income. It is calculated as:

$$\frac{\text{percentage change in quantity demanded}}{\text{percentage change in income}}$$

**Normal goods** have a **positive** income elasticity of demand; demand increases as income increases. There are two types of normal goods: **normal necessities** and **normal luxuries**. A normal necessity has a coefficient between **0 and 1**. Demand increases in a smaller proportion to the income increase. For example, the need to consume more of these products as income increases, e.g. washing powder, juice, etc. These products tend to be **income inelastic**. Demand will remain relatively stable even if the price changes. A normal luxury product has a coefficient **greater than 1**. Demand increases in a greater proportion to the income increase. Consumers are more willing to spend on luxuries as income levels increase. For example, luxury chocolates. These products tend to be **income elastic**. Demand is more responsive to price changes.

**Inferior goods** have a **negative** income elasticity of demand; demand falls as income increases. For example, own brand baked beans, tinned meat. As income levels increase consumers will switch to more expensive products.

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The value to a business of knowing a product's income elasticity of demand is that it is aware of the impact on demand and revenue of changing income levels. This will help the business choose the most appropriate marketing strategy to implement, so the product or business remains profitable. If income levels are decreasing and the product is income elastic, the business might reduce sales. In order to spread the risks associated with falling income levels a business might diversify its products, so it is no longer reliant on a small number for success.

The **limitations of both price elasticity and income elasticity of demand** include:

- historic data is used to calculate the coefficient; therefore, it may not be an accurate predictor of what will happen in the future;
- a time period on which to base the calculation of the elasticity of demand coefficient. However, different time periods may generate different outcomes. This makes it difficult to identify which time period to use, thus potentially resulting in the coefficient being outdated in the future, leading to wrong strategies being chosen and/or the business lacking the resources to choose not to use it at all;
- this can be a timely and costly process, which results in it not being a viable option for all businesses and it is assumed that all factors remain the same, but the internal and external factors may change. The time of the coefficient's calculation may not remain the same in the future. For example, the coefficient may have related to a period of economic downturn, but the future may be different, so the coefficient would not be applicable to the future.

## Part C: Example

1. Tick the appropriate column in the following table indicating whether the listed item is price elastic or price inelastic.

	Price elastic	Price inelastic
Drinking water		
Bottled water	✓	
Holiday	✓	
Cigarettes	✓	
Clothing		

*The price elastic items either have alternatives available or are non-essential. If the price of these items increases demand will fall and vice versa. Items that are deemed necessities; therefore, if price increases demand will have a small fall and vice versa. Cigarettes appear in both columns, as for some consumers it will be a luxury item, while to others it has become a habit, thus a necessity.*

2. Based on the price elasticity of demand coefficient, place a tick in the relevant column indicating whether the price should be increased or decreased for revenue to increase.

PED coefficient	Increase price	Decrease price
-1.2		
0.8	✓	
2.4		
-0.3	✓	

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3. A business increased prices by 15% which resulted in demand falling from 50,000 to 35,000 units.

- a) Calculate the price elasticity of demand.

$$35,000 - 50,000 = -15,000$$

$$\frac{-15,000 \times 100}{50,000} = -30\%$$

Demand fell by 30%.

$$\frac{-30}{15} = -2PED$$

- b) Advise the business on whether the price should be increased or decreased.

The product is price elastic (remember to ignore the negative), as the product demand is responsive to a change in price. Price changes result in a large change in demand. If the business wishes to increase revenue it should not increase it.

4. A business's product has a PED of -2.5. Selling price per unit is currently £35 and 8,000 units, which generates a sales revenue of £280,000. What will be the effect on sales revenue if the price is reduced by 20% to £28?

A PED of 2.5 means that for every 1% change in price, demand (i.e. sales) changes by 2.5%. That is, if price is reduced, demand increases, and if price rises demand falls.

If price is decreased by 20%:

- demand will increase by  $2.5 \times 20\%$  i.e. 50%
- demand will rise by 4,000 ( $8,000 \times 50\% = 4,000$ ,  $4,000 + 8,000$ ) to 12,000
- revenue at the reduced selling price will be £336,000 ( $12,000 \times £28$ )
- revenue will be £56,000 more ( $£336,000 - £280,000$ ) than it was previously

5. In relation to income elasticity of demand, tick the appropriate column in the following table to indicate whether the listed items are a normal necessity, normal luxury or inferior good.

	Normal necessity	Normal luxury
Bread	✓	
Sports car		✓
Tea	✓	
Bus travel		
Own label tea		
Overseas holiday		✓

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6. Average income in the economy is anticipated to fall from £24,000 to £23,040. A product is expected to fall from 8,000 to 6,400.

- a) Calculate the income elasticity of demand.

$$23,040 - 24,000 = -960$$

$$\frac{-960 \times 100}{24,000} = -4\%$$

Income fell by 4%.

$$6,400 - 8,000 = -1,600$$

$$\frac{-1,600}{8,000} = -20\%$$

Demand fell by 20%.

$$\frac{-20}{-4} = 5YED$$

- b) Discuss how the income elasticity of the product could influence the market by the business.

The product has an income elasticity of demand coefficient which is positive, therefore the product is a normal luxury. Demand for the product will increase when income rises. Demand for the product will decrease when income falls.

At a time when the economy is performing well and consumers are experiencing high income levels, the business will benefit from increasing demand, but demand will fall when income levels fall.

The business may use the marketing mix to create a strong brand image. When income levels are falling, consumers will perceive it as a must-have product, thus making it more income inelastic.

A broader product range could be developed by the business, so its products are not just normal luxuries. The business is less reliant on one type of product for its survival, if demand falls for one or more of them.

7. Explain **one** disadvantage of a business using a price elasticity of demand coefficient.

The PED coefficient is based on historical data; therefore, there is no guarantee. It might indicate to a business a product has price inelastic demand, but if it enters the market with similar or better products its demand could become elastic. If it increases the price expecting a higher revenue it would be surprised by the fall in revenue due to the fall in demand being proportionally higher than the price increase. Businesses who routinely monitor market trends and calculate the coefficient can avoid this drawback.

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## Part D: Practice Activity

### Activity 9 (Price Elasticity of Demand)

1. Explain whether the following items' demand is likely to be price elastic or price inelastic.

a) Car MOT test

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b) 42" Curved Smart HD television

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c) Pint of milk

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d) Coca-Cola

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3. A short-haul low cost airline, Fly Away, offers routes from Luton (London) Airport to Verona (Italy). The airline's service usually has demand of 140 customers paying £120 for a return ticket. If the airline increases the price to £138 and it is anticipated that demand will change to 100 customers.

a) Calculate the price elasticity of demand for the Luton to Verona route.<sup>16</sup>

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<sup>16</sup> Note: this will not be assessed in the exam, but has been included to develop your understanding of the concept.

- b) Advise the business whether the selling price should be increased for the order to increase revenue.

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- c) Explain **one** reason why the effect on revenue may not be as the business

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- d) To what extent could the business influence the price elasticity of demand

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3. A small independent bakery has a PED of 0.8 for American-style cupcakes. The current selling price is £1.50 and demand at this price is 50 a day. It plans to increase the selling price to £1.60.

a) What will be the effect on revenue if the selling price is increased to £1.60?

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b) Advise the business on whether the selling price should be increased or not.

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c) Explain **one** benefit to the business of being aware of the price elasticity of its products.

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## Activity 10 (Income Elasticity of Demand)

1. A national department store sells a range of training shoes under its name. An area increased from £22,000 to £24,200. The business has noticed that the sales have fallen from 800 to 600 pairs over the last year.

a) Calculate the training shoes' income elasticity of demand.<sup>17</sup>

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b) Explain whether the training shoes are a normal necessity, normal luxury or inferior good.

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c) Explain **one** drawback to the business of being aware of the income elasticity for its products.

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d) Discuss the implications to the business of your answer to b) above.

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<sup>17</sup> Note: this will not be assessed in the exam, but has been included to develop your understanding of the concept.

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## SECTION 6: OPERATIONS DATA

### Part A: Specification Overview

Analysing the operational performance of the business is part of 3.4 Decision-making performance section and appears within subsection 3.4.2, Analysing operational performance. It is required to calculate and interpret operations data, along with examining the use of data in decision making. Students should be able to calculate, labour productivity, unit cost (average cost) and capacity utilisation.

**Note:** Labour productivity is covered in *Section 12: Human resource data*.

### Part B: Theoretical Overview

Operations management involves producing the product or service and providing the standard required. A business may set itself operational targets to measure the efficiency of its operations. Some measurements include unit costs and capacity utilisation.

**Unit costs** – the cost of producing one unit of output.

$$\frac{\text{total costs}}{\text{output}}$$

**Capacity** – the maximum amount of output a business can produce with the resources available.

**Capacity utilisation** – the percentage of maximum possible output that is being used.

$$\frac{\text{actual output per period} \times 100}{\text{maximum possible output per period}} = \%$$

A business does not wish to be at full capacity (100%) continuously, as this would lead to wear and tear on machinery/equipment or for staff training. Furthermore, staff could become stressed due to the pressure to produce at the maximum output level all the time. Spare capacity allows a business to cope with changes in demand, service machinery and train staff. However, spare capacity results in fixed costs being spread over fewer items, leading to lower profit margins. Also employees may become inefficient if there is insufficient work to keep them busy, possibly resulting in them leaving the employer. A business may temporarily seek to increase its capacity to meet a short-term increase in demand. This can be achieved through increasing the working hours of employees, reallocating resources within the company and/or subcontracting the work to businesses.

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## Part C: Example

Rosamund Café is a small business serving light snacks and drinks predominantly to Wharf. The lowest number of customers usually served during a week is 1,350 and cater for 1,800. The weekly costs of the business are as follows:

	1,350 customers	1,650 customers
Total variable costs	£1,620	£1,980
Total fixed costs	£1,500	£1,500
Total costs	£3,120	£3,480

1. Calculate the unit costs of the business for 1,350 customers a week.

$$\frac{£3,120}{1,350} = £2.31 \text{ unit costs}$$

2. Calculate the unit costs of the business for 1,650 customers a week.

$$\frac{£3,480}{1,650} = £2.11 \text{ unit costs}$$

3. Calculate the unit costs of the business if it operates at full capacity for a week.

$$\frac{£3,660}{1,800} = £2.03 \text{ unit costs}$$

4. Explain the effect on the weekly unit costs of the business, if it serves more customers.

*The unit costs of the business will decrease as the café serves more customers spread across more of them, thus reducing the unit fixed cost with each additional customer.*

5. Calculate the capacity utilisation of the business if the lowest numbers of customers are served.

$$\frac{1,350 \times 100}{1,800} = 75\%$$

6. Calculate the capacity utilisation of the business if the highest numbers of customers are served.

$$\frac{1,650 \times 100}{1,800} = 91.7\%$$

7. Explain **one** advantage to the business of not operating at full capacity.

*Time will be available to train staff and service the machinery/equipment at full capacity.*

*Failing to train staff could result in errors being made, possibly regarding food standards, which could lead to the business being prosecuted and fined.*

*Failure to service the machinery/equipment could result in it breaking down resulting in demand not being met and the reputation of the business suffering.*

*Spare capacity allows the above problems to be avoided.*

8. Explain **one** method the business could use so that it works nearer to full capacity.

- Increase demand through promotional offers
- Reduce capacity – open for fewer hours or reduce the number of staff

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## Part D: Practice Activity

### Activity 11

Brenda's B&B provides a bed and breakfast service in Brighton, close to the beach. The occupancy levels are close to the 35 capacity. The owner, Brenda, employs a permanent part-time person running of the business, but during the low season there can sometimes be very little demand. The weekly occupancy levels and total costs of the business are below.

	Low season	
Average occupancy	20	
Total costs	£400	

1. Calculate the capacity utilisation in low season.

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2. Calculate the capacity utilisation in high season.

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3. Calculate the change in unit costs between high and low seasons.

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4. Analyse **one** way the business could match supply to demand during the low season. The employee's skills are often underused during this period.

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## Activity 12

Huddersfield-based coach firm, Universal Travels, provides a Saturday service to customers aged 21 and over who wish to attend a nightclub in the city. The price charged covers the coach and entry to a nightclub. A 49-seater coach is usually used. The number of customers has varied between 25 and 40 over the last month. To provide the service to 25 customers costs £600 but increases to £800 with 40 customers.

The business has been approached to provide a similar service to London in addition to Manchester. Due to high demand that weekend the business does have the capacity to provide the service with the current organisation of resources. The firm is keen to provide this service, but requires you to advise what can be achieved.

1. Calculate the unit cost and capacity utilisation of the Manchester service, if 25 customers are served.

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2. Calculate the unit cost and capacity utilisation of the Manchester service, if 40 customers are served.

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3. Analyse the implications to the business of having a higher capacity utilisation.

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4. Analyse **one** method the business could use to increase demand to at least 4% service.

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5. Advise the business of **one** strategy it could use, so that the London nightclub provided.

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## SECTION 7: INVENTORY CONTROL CH

### **Part A: Specification Overview**

Influences on the amount of inventory held by a business is part of the 3.4 Decision making: financial performance section and appears within subsection 3.4.5, Making operational performance: managing inventory and supply chains. Students are required to identify lead time, reorder levels, buffer level of inventory and reorder quantities.

### **Part B: Theoretical Overview**

Inventory is another name for stock and consists of:

- raw materials and components
- work in progress – products that are in the process of being made, but are not finished
- finished goods

This is fundamental to the success of a business, as without it production would not be available for sale online or through retail outlets.

Businesses have to be certain of selecting the right supplier, otherwise failure to do so will impact trade efficiently. They will consider a number of factors when choosing a new supplier:

- provide a competitive price?
- meet the quality standard expected?
- meet the level of demand requested?
- be flexible – accept lower or higher orders?
- guarantee they are financially secure and will not go out of business midway

A business will not necessarily choose a supplier because they offer the cheapest price; they believe will meet their expectations, even if this means having to pay a higher price for an alternative one.

A business will not want to hold **too little inventory** because:

- customers might choose a rival business, if their demand needs cannot be met
- there will be a longer **lead time** (the time between a customer placing an order and the stock was held)
- the reputation of the business might suffer

A business will not want to hold **too much inventory** because:

- there is the danger it might perish (e.g. food manufacturer/retailer) or become obsolete (e.g. manufacturer/retailer)
- too much money tied up in inventory could result in the business missing out on other opportunities (insufficient funds being available (**opportunity cost**))
- this can cause cash flow problems, as the business is reliant on selling the inventory. There is no guarantee that all can be sold and at the full price expected in a timely manner.
- holding large quantities of inventory increases storage costs, as it has to be kept in a secure location, increase the size of warehousing required.
- the business might become a target for thieves who are aware it holds large quantities of stock. This could make it more prone to burglaries, which subsequently increase its insurance costs.

Managers typically will use **electronic points of sale** (EPOS) or **inventory control** systems to monitor inventory levels. EPOS involves the use of barcodes on items. As one is sold the barcode is scanned and automatically register within a database that there is one less item. When an order is received, the database is updated by a barcode on the packaging of the items received. The database is then used to generate a new order.

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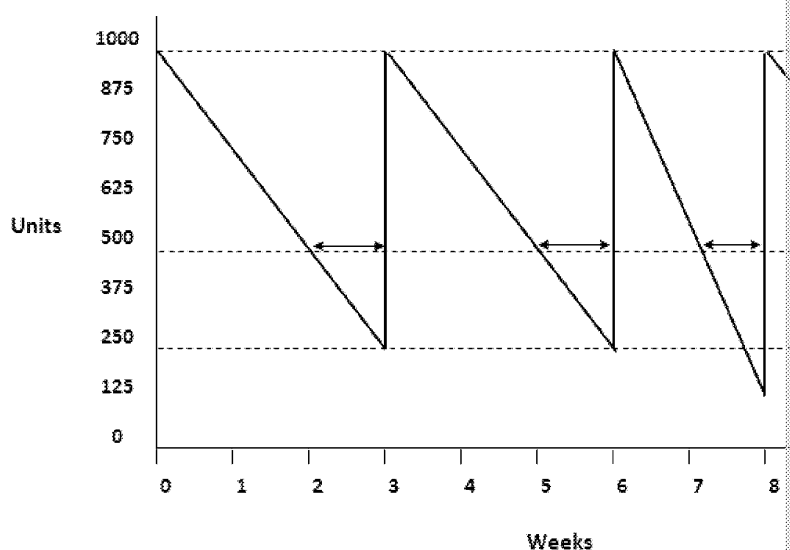


sold. Once a particular stock level reaches a particular reorder level an automatic supplier. This is typically used in the supermarket industry.

**Inventory control charts** are a means to manage the amount of inventory held. They are used over a period of time to be analysed with periods of excessive and/or limited inventory. Managers can then implement corrective measures, so the business is not in a position to hold too much inventory.

To use the inventory control charts successfully relies on the managers understanding the factors contained within them:

- **Maximum stock level** – this is the maximum amount of inventory the firm wants to hold. Below this level, the business holds no more than 1,000 units of inventory at any time.
- **Stock levels** – this shows the change in inventory levels over time – for example, items received and items sold. The business starts with an inventory level of 1,000 units. By week 3 it falls to 250 units, thus indicating 750 units being used over this period. However, during week 4 the inventory increases back to 1,000 units. Between week 4 and week 6 the inventory falls at a faster rate, as it fell to its lowest level of 125 units in week 9. This could be due to an unexpected increase in demand.
- **Reorder level** – shows the level of inventory at which the firm orders new stock. The lead time for the delivery of inventory, as there is a gap between ordering and receiving the items. The stock was reordered in week 3, week 6 and midway between weeks 8 and 9.
- **Lead time** – the amount of time it takes between an order being placed and the stock arriving. The business is usually one week, as in week 3 stock was reordered and by week 4 it arrived at its maximum level, thus indicating a lead time of one week.
- **Minimum stock level** – the minimum amount of inventory the firm wants to hold. This is known as the **buffer stock**. This provides the business with a certain amount of stock in case the supplier's order is delayed or if there is a sudden unexpected increase in demand. The business has a minimum inventory level of 250 units, but in week 9 it fell below this to 125 units. Reasons for stock falling below the minimum level include:
  - an unexpected higher level of demand
  - a stock order being delayed
  - a department forgetting to reorder



**Note:**

←→ Denotes lead time

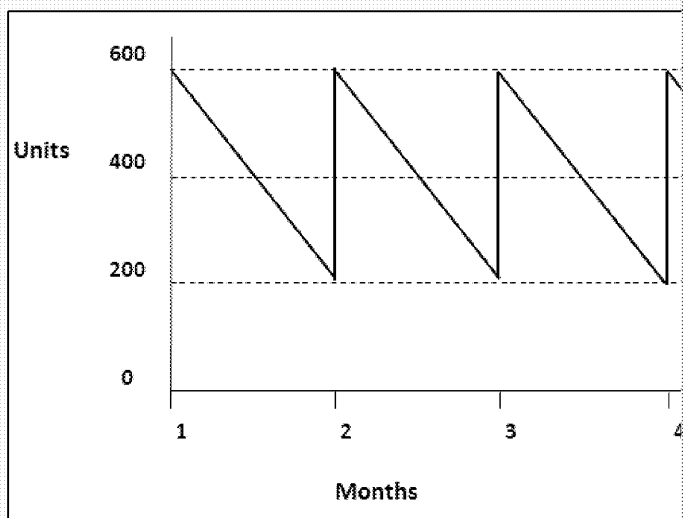
A business will never want to run out of stock, because this will halt production and the business will not be able to source stock from elsewhere via a rush order, it is more than likely at a high cost. If the profit margins are high, the increased cost cannot be passed onto customers.

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## Part C: Example

Use the chart below to answer the questions that follow it:



- What is the minimum stock level of the business?  
*200 units*
- What is the maximum stock level of the business?  
*600 units*
- What is the reorder level?  
*400 units*
- What is the lead time?  
*Approximately two weeks. For example, stock is ordered midway through month 1, at the start of month 2, thus indicating a lead time of around two weeks.*
- What is meant by buffer stock?  
*Buffer stock is the minimum amount of inventory a business wants to hold to avoid stockouts.*
- A new customer places an order for 500 units of inventory midway through month 4. What are the implications to the business of taking this order?  
*These are the possible implications:*
  - Midway through April the business only has 400 units; therefore, the order cannot be fulfilled without ordering more stock.*
  - If the business orders stock immediately it will take two weeks to be delivered. Therefore, the business cannot fulfil the order, as it would not arrive on time, unless its suppliers can rush the order. Suppliers might charge more for doing this.*
  - If the suppliers charge more for rushing through the order it might not be worth accepting the order onto the new customer; therefore, it might be accepting a lower profit margin from the new customer.*
  - The reputation of the business might also suffer, if it is unable to service the new customer and chooses to delay those of existing customers. Loyal customers might leave, leading to lower demand, revenue and profits. This means the new customer is not worth the risk.*
  - However, if the new customer leads to a substantial increase in demand, it might be worth taking the risk of providing this order above those of some existing customers.*
  - None of the above is an issue, if the suppliers can supply in good time and the business has enough buffer stock to meet the orders of the new customer and existing ones.*

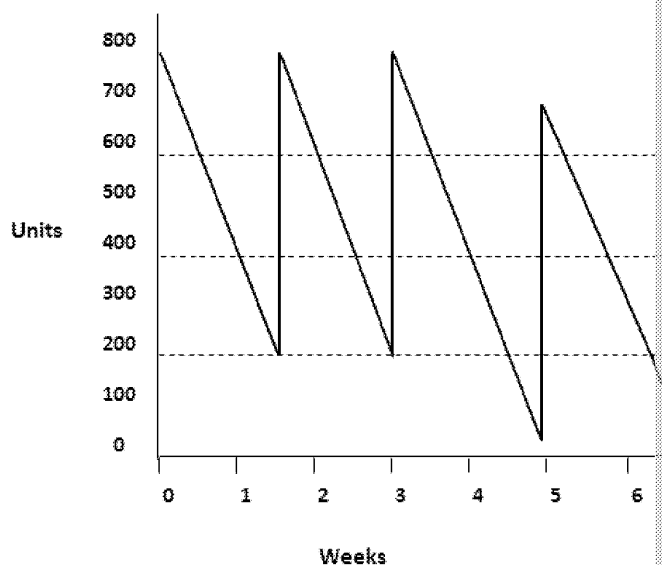
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## Part D: Practice Activity

### Activity 13

Use the inventory control chart below to help you answer the questions that follow.



- What is the minimum stock level of the business?  
.....
- What is the maximum stock level of the business?  
.....
- What is the reorder level?  
.....
- What is the average lead time between weeks 0 and 3?  
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- Discuss whether the inventory control of the business has been effective.  
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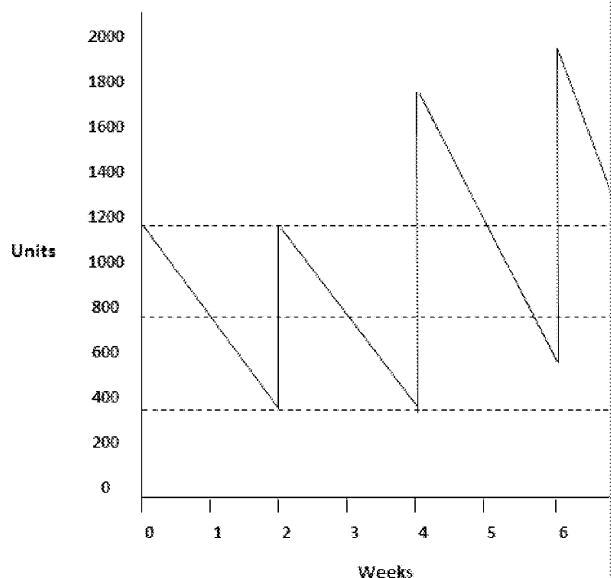
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## Activity 14

Francesco Footwear designs and manufactures shoes that are sold through established department stores. Since it commenced trading in 2008 it has enjoyed great success in many years, despite high levels of demand, this has not always been reflected in profits.

The new managing director, Colleen Thompson, believes part of the problem lies with the inventory management system.



- What is the maximum inventory level for Francesco Footwear?  
.....
- What is the inventory reorder level for Francesco Footwear?  
.....
- What is the minimum inventory level for Francesco Footwear?  
.....
- What is the average lead time between weeks 0 and 4?  
.....
- Discuss whether Francesco Footwear's profit issues can be attributed to its inventory management system.  
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## SECTION 8: BUDGETS

### Part A: Specification Overview

Constructing and analysing budgets is part of the 3.5 Decision-making to improve and appears within subsection 3.5.2, Analysing financial performance. Students analyse budgets, including variance analysis; adverse and favourable variances.

### Part B: Theoretical Overview

A **budget** is a target of costs and income that is to be achieved within a specified period. A budget can provide several benefits:

- The performance of the business or budget area can be measured against the budget to assess success.
- The review and monitoring of the budget against actual performance can highlight areas of concern, for example costs are higher than expected or income is lower than expected. This flags up to the budget holder and/or managers such areas, which could stimulate investigation to establish the reasons behind the differences and remedial action can be implemented where appropriate. For example, stock costs may be higher than anticipated due to inefficiencies. The business may choose to provide further training to staff, so that stock is handled more efficiently, reducing waste.
- A manager or team that has been given responsibility for the control of a budget can be motivated in accordance with Herzberg's two-factor theory. Performance that is measured against a budget can result in employees being recognised positively, which also could be motivating. This is in line with the hierarchy of needs and Herzberg. This could result in employees giving their best effort, leading to improved productivity and higher standards being achieved, along with a lower cost of production.
- Setting a budget can ensure that business spending is focused on the corporate objectives. It allows funds of individuals. This allows funds to be allocated accordingly.

There are a number of disadvantages associated with using budgets:

- A budget holder may not have the required skills to manage their budget effectively. This can cause undue stress and areas of overspend or lower than expected income. If no appropriate intervention being taken. The business may have to incur training costs for the budget holder to acquire the necessary skills.
- Budgets may be allocated based on the negotiation skills of the budget holder. A budget holder with a budget far greater than needed as they are able to present a very persuasive case. Those who do not possess these skills will be allocated one which may not be sufficient for their needs.
- Some budget holders focus on the short term and will take every action possible to meet the budget. This may appear advantageous, but during this process opportunities that could improve long term performance of the business are forgone.

Variance analysis is the process of monitoring budgets against the actual performance.

**Variances** – the difference between the budgeted income, expenditure or profits and the actual income or profit which is higher than the budget is known as a **positive** or **favourable variance**. Actual income or profit which is lower is known as a **negative** or **adverse variance**. Actual expenditure which is higher than the budget is known as a **negative** or **adverse variance**, while one that is lower is known as a **positive** or **favourable variance**.

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## Budget XYZ

	Budget	Actual
Income	£350,000	£425,000
Expenditure	£270,000	£350,000
<b>Profit</b>	<b>£80,000</b>	<b>£75,000</b>

In the above example, the income variance is favourable as the business has achieved more income than budgeted. The expenditure variance is adverse, as the business has spent £70,000 more than budgeted. The profit variance is favourable, as the business achieved £5,000 more profit than expected.

**Note:** F is favourable variance and A is adverse variance.

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## Part C: Example

Heming's Driving School provides driving lessons to learner drivers and advanced drivers. The school is accredited by the Institute of Advanced Motorists. Elizabeth Heming wishes to compare the school's performance to the budgets set. The incomplete budget and actual statement is as follows:

	Budget	Actual
<b>Income</b>		
Learner driver sales	£33,600	£38,640
Advanced driving course sales	£11,200	£10,080
<b>Total income</b>	<b>£44,800</b>	<b>£48,720</b>
<b>Expenditure</b>		
Fuel	£13,440	£15,450
Insurance	£2,700	£2,500
Car servicing	£850	£990
Labour costs	£24,500	£26,000
<b>Total expenditure</b>	<b>£41,490</b>	<b>£44,940</b>
<b>Profit/loss</b>	<b>£3,310</b>	<b>£3,780</b>

1. Calculate the income, expenditure and profit budgets for the business.

See the table above for answers and below for the calculations.

Income budget	$£33,600 + £11,200$	=
Expenditure budget	$£13,440 + £2,700 + £850 + £24,500$	=
Profit budget	$£44,800 - £41,490$	=

2. Calculate the income, expenditure and profit variances for the business.

See the table above for answers and below for the calculations.

Income variance	$£48,720 - £44,800$	=	£3,920 F
Expenditure variance	$£44,940 - £41,490$	=	£3,450 A
Profit variance	$£3,780 - £3,310$	=	£470 F

Please note that any negatives which occur in the answer do not need to be stated. The difference is stated including whether it is an adverse or favourable variance.

3. Explain how a budgeting system may help the business to control expenses.

The business can compare its performance with each target. This can highlight areas where the budget may need to be given to controlling spending, if adverse expenditure variances occur. Where income variances to improve sales require implementation, where adverse income variances occur.

Comparing the budget with the actual outcomes would have highlighted areas where income was higher than expected, expenditure, which are higher than expected:

- Fuel costs have an adverse variance. If fuel costs are increasing generally, the budget for this area, so it is realistic. However, it may still try find ways to reduce fuel, so the expenditure on this area is stabilised or lowered.
- Labour costs have an adverse variance. This could be attributed to a pay increase occurring, as learner driver sales were higher than expected possibly due to the business may choose to not increase the wages in the coming year.
- Servicing costs had an adverse variance, which were £90 higher than expected. The business may need for the business to seek an alternative provider for such a small overspend, as the current service has been reliable and efficient.
- Insurance had a favourable variance. The business may seek to reduce this cost if this cost can be sustained, and allocate it to an area which needs a higher budget.

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### **Part D: Practice Activity**

## Activity 15

A small florist's budgeted income was £3,150 and budgeted expenditure £2,250 for January. The florist expects that both income and expenditure are expected to be 20% higher in February.

1. Complete the following budget and actual performance statement for the budgeted and actual performance for the month of February

	Budget	Actual
Income		£3,600
Expenditure		£2,500
Profit		£1,100

2. To what extent is setting a budget of value to an international florist chain, such as the British unit?

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## Activity 16

Sunlight is a bakery and coffee shop in Norfolk, who recently expanded into providing catering services for private occasions. In previous years the business was concerned its stock costs were high and that its sales should be, as it did not produce a budget. A business advisor suggested it was important that appropriate decision-making can occur. The business produced its first budget last year.

- Fill in the spaces below to complete the budget and actual performance statement.

	Budget	Actual
<b>Income</b>		
Bakery and coffee shop sales	£220,500	£234,400
Catering service sales	£24,500	£25,000
<b>Total income</b>		£259,500
<b>Expenditure</b>		
Materials	£73,500	£85,000
Wages	£130,400	£136,900
Rent	£12,000	£12,000
Marketing	£13,500	£17,600
<b>Total expenditure</b>		£251,500
<b>Profit/loss</b>		<b>£7,930</b>

- Explain **one** reason why Sunlight should produce a budget.

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- To what extent were the owners right to be concerned about the amount spent on marketing?

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## SECTION 9: CASH FLOW FORECASTING AND

### Part A: Specification Overview

Constructing and analysing cash flow forecasts is part of the 3.5 Decision-making and performance section and appears within subsection 3.5.2, Analysing financial performance. You will be required to construct and analyse cash flow forecasts.

### Part B: Theoretical Overview

A **cash flow forecast** predicts the amount of cash to come in and go out of the business over a period of time.

It indicates when cash shortages may occur, alerting the business to take action to avoid it. Predicted short-term cash flow problems could be resolved with an overdraft or negotiating with suppliers for longer to pay. The business may ask debtors to pay quicker or unwanted assets may be sold to provide an injection of cash.

Long-term cash flow problems may require a loan or new owners joining the business.

The key elements are:

- **Cash inflow** – money coming into the business usually from sales.
- **Cash outflow** – money going out of the business usually to pay bills.
- **Net cash flow** – difference between cash inflows and cash outflows.
- **Opening balance** – the amount of cash anticipated at the start of a period; the closing balance of the previous period.
- **Closing balance** – the amount of cash anticipated at the end of a period. A negative closing balance indicates a business will not have sufficient cash to meet expected payments; a positive closing balance indicates there will be enough.

**Cash and profit** – it is often presumed that a profitable business will be cash rich. Many businesses provide trade credit; customers receive the product or service before paying the amount owed. On paper the business has made a profit from this form of trade; however, the bank balance until the customer settles their debt.

Cash is important in the **short term** to meet the payments as they fall due, as this allows the business to continue trading. However, profit is essential, at least in the **long term** as the business cannot grow, as funds are not available for product development, expanding into new markets, etc.

A business may experience **cash flow problems** because:

- it is holding too much stock, their money is tied up in products. If the stock becomes obsolete, the cash invested in it will not be recovered, as it cannot be sold;
- trade debtors take longer to pay than they should, therefore reducing the cash available, making it difficult for the business to pay the expected cash outflows;
- an overtrading (growing too fast) business will have high rate of cash outflow on purchasing equipment, stock, hiring new staff, etc. However, the cash invested in this expansion is not paid straight away, as the cash inflows from such activities are not generated immediately;
- unexpected changes in demand could result in fewer products sold and cash inflows.

Cash flow forecast
<b>A) Cash inflows</b>
Owner's capital
Cash sales
Credit sales
<b>Total cash inflows</b>
<b>B) Cash outflows</b>
Materials
Labour
Telephone
Rent
Marketing
Other expenses
<b>Total cash outflows</b>
C) Opening balance
D) Net cash outflow (A - B)
<b>E) Closing balance (C + D)</b>

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The **benefits** of a cash flow forecast:

- the timing of cash in and out of the business is identified, thus allowing remedial action before a negative (deficit) occurs, such as arranging an overdraft;
- periods when positive cash should be available are recognised, which allows resources will be available for new business strategies;
- it allows the business to identify ways to make any anticipated positive funds available to the business, such as opening an interest bearing account in preparation to deposit when they become available, rather than leaving them in a non-bearing interest account;
- it allows the business to plan ahead, as it will know when cash will be available;
- potential lenders are more inclined to lend, if they believe the business has good means to repay any loan provided.

The **drawbacks** of a cash flow forecast:

- it is based on estimates; therefore, it is only as good as the estimates used;
- the production of a cash flow forecast can be complex and time-consuming; and more likely to have the resources to invest in this process; and
- it cannot forecast for unexpected changes in market conditions.

## Part C: Example

1. Swan Clothing Designs is owned by Salina Choudhary. She designs urban streetwear for independent retailers. Complete her cash flow forecast for the first three months using the following data:

**Sales** – Jan £8,000, Feb £9,500, Mar £13,500

**Loan received** – Feb £1,500

**Materials** – Jan £5,400, Feb £6,000, Mar £7,000

**Rent** – Jan £1,500, Feb £1,500, Mar £1,500

**Wages** – Jan £2,200, Feb £2,200, Mar £2,200

**Electricity** – Mar £350

**Advertising** – Jan £500

**Other expenses** – Jan £500, Feb £500, Mar £750

Swan Clothing Designs

### A) Cash inflows

Loan received

Sales

**Total cash inflows**

### B) Cash outflows

Materials

Rent

Wages

Electricity

Advertising

Other expenses

**Total cash outflows**

C) Opening balance

D) Net cash outflow (A - B)

**E) Closing balance (C + D)**

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## 2. Comment on the forecasted cash flow position of Swan Designs Clothing.

For both January and February it is anticipated that the business will have to pay bills. This could damage its reputation, if bills are paid late or are unpaid, leading to suppliers refusing to provide further supplies or insisting on payment before delivery.

If the business exceeds its bank balance without permission it could incur bank charges, which will further deepen any cash flow problems.

The planned injection of cash in February (loan) will help to reduce the expected cash deficit but will not resolve it completely, as it will not be positive until March.

Salina should be concerned to some extent, as the first two periods are expected to be in deficit. In fact the initial problem will be caused by the anticipated January cash deficit. From then onwards it is expected to improve, as cash inflows will be more than cash outflows. She should be pleased to know it is a short-term problem rather than long-term. The cash flow is anticipated to be positive by March.

## 3. Salina Choudhary is planning to obtain a loan in February. Advise her on whether it is an appropriate course of action to resolve any expected cash flow problems.

The cash flow problem is expected to be short term, as it is less than one month. A short-term measure would be appropriate rather than a medium-to long-term one, such as a loan. She could arrange an overdraft which will allow her to spend more than she has in the bank. This may be preferable as she will only be charged if she makes use of the facility. Bank charges straight away, as soon as it is issued, regardless of whether the business uses it or not.

As January's expected expenditure is the cause of the problem, as the net cash flow is negative, she might decide to wait until March for the advertising campaign to start and/or negotiate with suppliers for longer to pay bills, thus delaying payment.

## 4. Explain **one** reason why Salina might be cautious about the cash flow forecast.

Salina could be cautious about the cash flow forecast for any one of the following reasons, due to its accuracy:

- changing consumer tastes, resulting in lower or higher levels of demand
- increasing costs due to inflation resulting in higher than expected costs
- poor market research leading to the wrong marketing mix being followed, leading to lower sales
- Salina's experience within the market; a new business owner could lack the experience to put together an accurate cash flow forecast

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## Part D: Practice Activity

### Activity 17

- Jonathan McGovern runs a garage that provides a repair service and sells a range of cars. Complete the following cash flow forecast for McGovern's Garage.

McGovern's Garage – Cash Flow Forecast

	May	
<b>Cash inflows</b>		
Repair sales	£9,000	
Car sales	£2,000	
<b>Total cash inflows</b>	£11,000	
<b>Cash outflows</b>		
Materials	£2,250	
Car purchases	£3,500	
Rent	£2,000	
Wages	£2,500	
Electricity	£150	
Advertising	£500	
Other expenses	£500	
<b>Total cash outflows</b>	£11,400	
Opening balance	£800	
Net cash flow	-£400	
Closing balance		

- Advise the business on whether any action may be required regarding their cash flow.

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## Activity 18

Majestic Electronics sells a range of electrical items including televisions, washing well as providing a repair service. At the start of each year demand is usually low, available to spend due to increased costs over Christmas. The business expects to next year of £1,125 with expected cash flows for the first two quarters (QTR) as follows:

- Repair sales – £1,300 (QTR1), £2,175 (QTR2)
- Electrical sales – £6,500 (QTR1), £10,875 (QTR2)
- Stock – £5,175 (QTR1), £6,600 (QTR2)
- Labour – £2,440 (QTR1), £2,625 (QTR2)
- Rent – £1,200 (QTR1), £1,200 (QTR2)
- Utilities (gas/electricity) – £525 (QTR1), £525 (QTR2)
- Telephone – £210 (QTR1), £210 (QTR2)

1. Complete Majestic Electronic's cash flow forecast for the first two quarters.

	Quarter 1	
<b>Cash inflows</b>		
Repair sales		
Electrical sales		
<b>Total cash inflows</b>		
<b>Cash outflows</b>		
Stock		
Labour		
Rent		
Utilities		
Telephone		
<b>Total cash outflows</b>		
Opening balance		
Net cash flow		
<b>Closing balance</b>		

2. Majestic Electronics' owner, Paul Bennett, believes that trade will be low again. He is considering introducing a new owner to the business, so that any potential problems are avoided. Advise the owner accordingly.

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3. Discuss whether a small business owner like Paul Bennett should take the time to make a forecast.

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## SECTION 10: BREAK-EVEN ANALYSIS

### Part A: Specification Overview

Constructing and interpreting break-even is part of the 3.5 Decision-making to improve financial performance section and appears within subsection 3.5.2, Analysing financial performance. Students should be able to calculate and interpret on a break-even chart the effects of changes in price, output and variable costs, and analyse the value of break-even analysis. Break-even output, margin of safety, contribution and contribution ratio is included within this.

### Part B: Theoretical Overview

**Contribution** is a measure of the amount each product or service contributes towards covering the fixed costs (overheads) of the business. Once fixed costs are covered the contribution from each product or service sold is profit.

contribution per unit = selling price unit – variable costs per unit

total contribution = contribution per unit × number of units sold

OR

total contribution = revenue – total variable costs

A business can use the contribution approach to determine which products contribute most towards covering the fixed costs of the business or generate the highest level of profit, once these costs are covered.

	Product A
Selling price per unit (sp p/unit)	£250
Variable (direct) cost per unit (vc p/unit)	£140
Contribution per unit (sp p/unit – vc p/unit)	£110
Sales (units)	5,500
<b>Total contribution (sales × contribution p/unit)</b>	<b>£605,000</b>

In the example above, Product A has the lowest contribution per unit at £110, but it is the only product that contributes towards covering fixed costs when the total contribution is taken into consideration. Both these products go towards covering fixed costs. If the business has fixed costs of £572,000, a profit of £63,000 is achieved (£605,000 + £572,000 – £635,000).

The contribution approach can assist a business in deciding whether a **special order** is profitable. This is usually at a lower price than normal orders and does not necessarily conform to the business's normal operating procedures. In reaching a decision the business would identify whether the special order is profitable or not. If it is negative the business would be supplying the order at a loss, which is not financially worthwhile. If the special order is positive some of the following factors should be considered in reaching its decision:

- Is there spare capacity?
- What is the impact on existing orders?
- How might existing customers react to paying a higher price?
- Will the order increase fixed costs?
- Will the order lead to future sales?

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**Break-even** is where the business does not make a profit or a loss; revenue equals total costs. To calculate break-even three pieces of information are required:

- selling price per unit
- variable cost per unit
- total fixed costs

**Calculating break-even** – there are three methods that can be used to calculate break-even. The methods demonstrated below are based on the following:

- selling price per unit = £10
- variable cost per unit = £5
- fixed costs = £50

## 1. Contribution method

$$\frac{\text{fixed costs}}{\text{contribution per unit}}$$

$$\frac{£50}{£10 - £5}$$

$$\frac{£50}{£5}$$

Break-even output = 10 units

## 2. Table method

Refer back to Section 1 for a reminder on how to calculate each of the items

Output	Revenue	Total variable costs	Fixed costs	Total costs	Profit/loss
0	0	0	50	50	-50
5	50	25	50	75	-25
10	100	50	50	100	0
15	150	75	50	125	25

Reviewing the profit/loss column allows a business to identify where £0 appears. This is the break-even point where the business has not made a profit or a loss and therefore the level at which it breaks even is 10 units.

The business has total costs of £50 at zero output level even though the business has not produced any product. It still has fixed costs that have to be paid regardless of whether a product is produced. For example, the business would still have to pay rent, insurance and salaries.

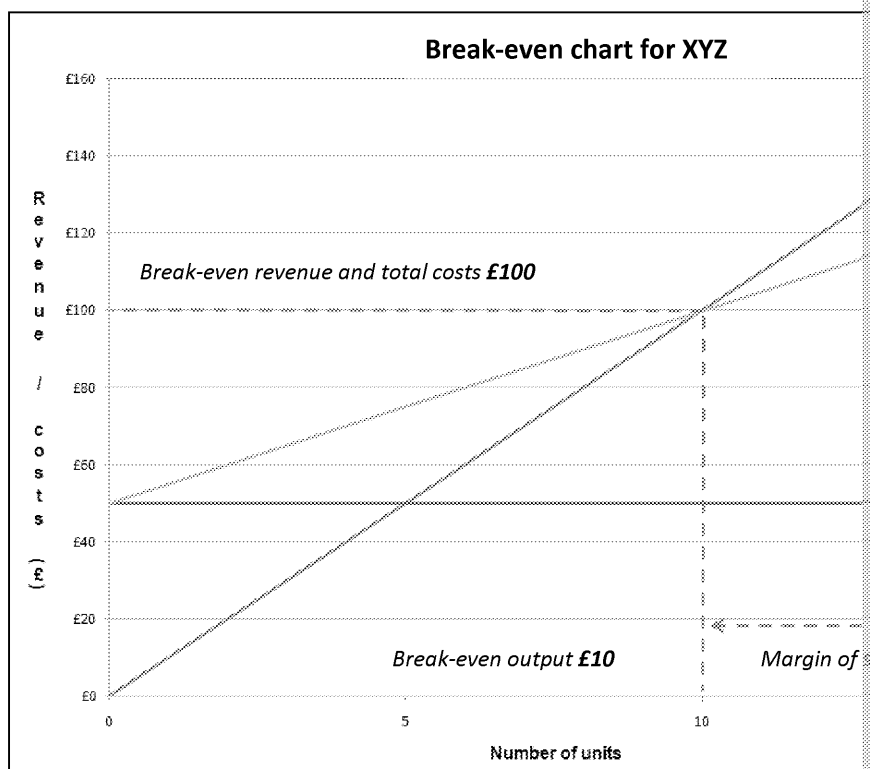
## 3. Charting method

The only lines that need plotting are the **revenue** and **total cost lines** to establish the break-even level, but total variable costs, fixed costs could be included in addition to these.

The exam boards usually require students to deal with linear (straight) lines. An amendment of a break-even chart. It is not necessary to plot every single piece of data. Plotting two will be perfectly adequate, as the line is linear. For example, in the revenue chart, plot the revenue at zero output and at 15 output. Once these two points have been plotted, draw a straight line joining the two points together. This process should be repeated for the total cost data that are to be included in the chart.

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Break-even occurs where the revenue and total lines cross, as this is where the business has neither profit nor loss. The break-even output is 10 units, while the break-even revenue is £100.

**Margin of safety** is the difference between the break-even output level and actual output. This provides an indication of how far sales can fall before the business starts to make a loss.

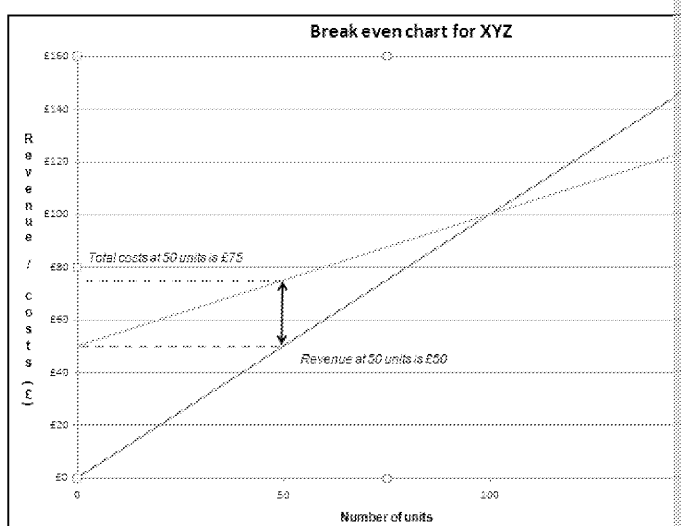
$$\text{margin of safety} = \text{break-even output} - \text{actual output}$$

A business will use the chart to find both revenue and total costs at a specified output level. It can also identify the profit or loss that is expected at different levels of output.

The process is quite straightforward. All that is required is to identify the revenue and total costs at the output level. The following formula is used to ascertain whether a profit or loss is expected:

$$\text{profit} = \text{revenue} - \text{total costs}$$

For example, in the break-even chart below £50 revenue is achieved at an output level of 5 units. At this level, total costs are £75. A business choosing to operate at this level would make a loss of £25.



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**Benefits of break-even analysis** – the completion of break-even analysis can support financial planning, along with providing a useful business decision-making tool. A business that knows its break-even output will know that its marketing strategy may need amending in order to increase sales above break-even. Without this knowledge it may be unknowingly trading at a loss. Furthermore, break-even analysis is a useful tool, as it allows the business to identify the impact on the break-even output, if costs change.

**Drawbacks of break-even analysis** – there is an assumption that what is produced will be sold, as some may not sell. Furthermore, there is an assumption that both price and variable costs are constant, but if a product or raw materials, for example, are bought in bulk they may be at a lower cost due to a bulk-buying discount. Costs and prices do not always remain the same.

## Part C: Example

The example is based on the data in **Section 1 within the Part C: Example section**.

1. Calculate the total contribution based on the 80 customers Simone's Sandwich Shop has.

$$£3.75 \text{ (amount spent per customer)} - £1.25 \text{ (variable cost per customer)} = £2.50$$

$$£2.50 \times 80 = £200 \text{ total contribution}$$

2. How many customers a week must Simone's Sandwich Shop have in order to break even? Use the formula method to work out break-even.

$$\frac{£625 \text{ (fixed costs)}}{£2.50 \text{ (contribution per unit)}} = 250 \text{ customers per week}$$

3. Simone's Sandwich Shop's is in the process of negotiating a new lease and insurance costs should be reduced to £500 per week. Calculate the new break-even output level using the table method.

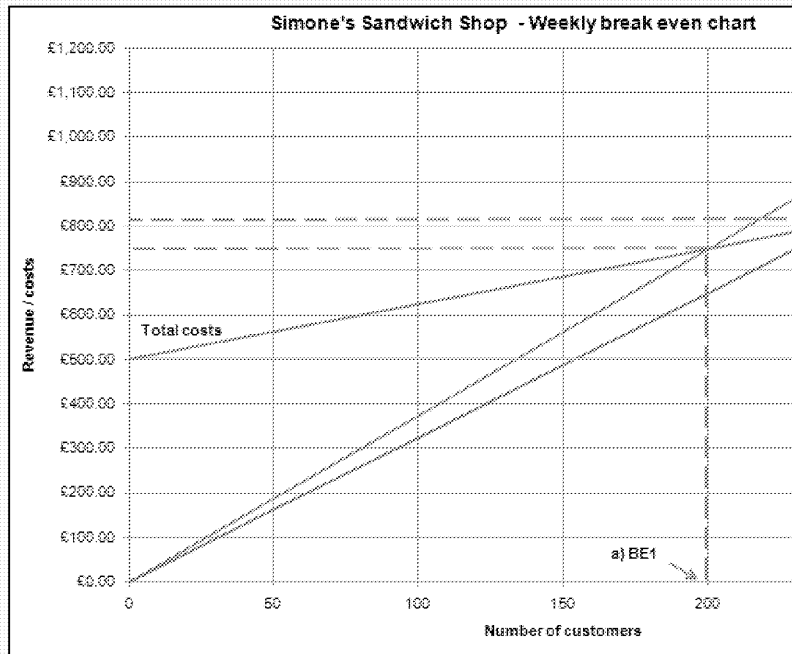
Customers	Revenue	Total variable	Fixed costs	Total costs
	$£3.75 \times$ customers	$£1.25 \times$ customers		
0	£0.00	£0.00	£500.00	
50	£187.50	£62.50	£500.00	
100	£375.00	£125.00	£500.00	
150	£562.50	£187.50	£500.00	
200	£750.00	£250.00	£500.00	
250	£937.50	£312.50	£500.00	
300	£1,125.00	£375.00	£500.00	

Simone's Sandwich Shop's new break-even output level is 200 customers per week, compared to 250 customers.

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4. The business has decided to pass on its savings in total costs to its customers the average spend per customer being reduced to £3.25.
- Label the break-even output level before the reduction in prices on the chart.
  - Plot the new revenue line and label it as REV2.
- Hint: Plot the revenue at 0 customers then choose another output level and price achieved at that, e.g. £325 ( $100 \times £3.25$ ) at 100 customers. As the line is a straight line, two points plotted together and extend to the maximum output point available.
- Label the new break-even output level on the chart below as BE2.
  - What is the new break-even output level due to the price decrease?



The new break-even output level is 250 customers a week, which is a

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## Part D: Practice Activity

### Activity 19

Smyth Special Occasions is a business that organises special events including wedding anniversary parties. The business charges each customer £1,000 to organise the event. The variable costs are **£1,000 per week**, which includes the event planner's and office assistant's salaries, heating and lighting. The business usually organises four events per week. The variable cost per event totals **£500**.

- Using the contribution method, calculate how many customers per week Smyth Special Occasions needs to break even.

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- Assuming Smyth Special Occasions continues to have at least four customers per week, calculate the margin of safety.

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- Comment on the break-even position of Smyth Special Occasions at present.

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- Smyth Special Occasions has been approached by a potential customer to arrange a special event at a reduced time. The customer is not willing to pay the usual £1,000 associated with each event but is willing to pay £800. Advise the business on the factors that should be considered before accepting the offer.

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## Activity 20

Mario's Specialist Cakes produces cupcakes for special occasions, including wedding receptions. The business's customer base is across the West Midlands. The selling price per cupcake is £2 with variable costs of £1.50 per cupcake. The business has fixed costs of £3,000 per month. The business usually produces 2,000 cupcakes per month.

- Complete the break-even table below for Mario's Specialist Cakes.

Output	Revenue	Total variable costs	Fixed costs	Total costs
0	£0	£0		£3,000
500	£1,000	£750	£3,000	£4,750
1000	£2,000	£1,500	£3,000	£6,500
1500		£2,250	£3,000	£8,250
2000	£4,000	£3,000	£3,000	£10,000
2500	£5,000	£3,750	£3,000	£11,750
3000	£6,000	£4,500	£3,000	£13,500

- How many cupcakes must the business sell a month to break even?

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- Explain why Mario's Specialist Cakes has total costs of £3,000, if no cupcakes are produced.

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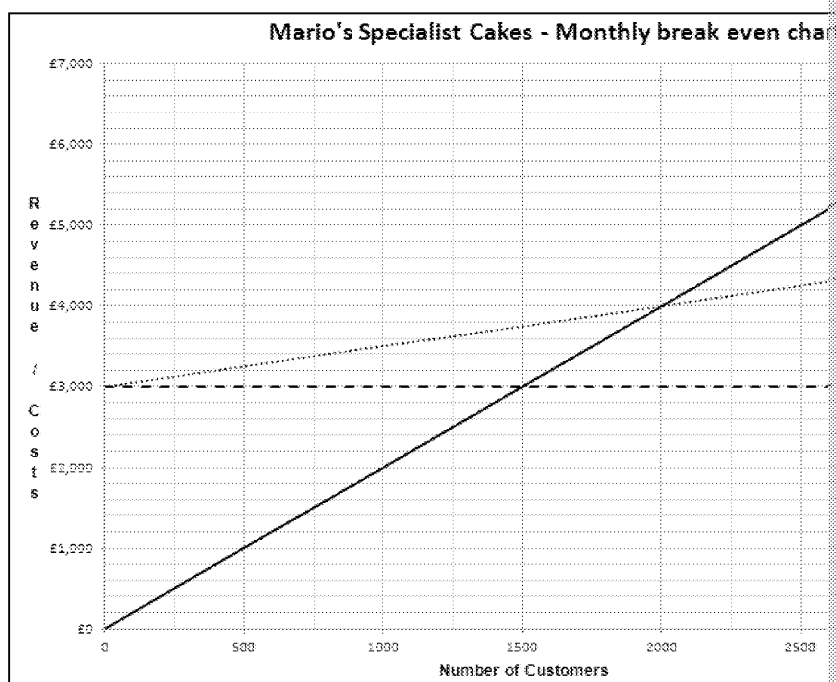
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4. Mario's Specialist Cakes is planning to increase the selling price of each cupcake but not to continue selling 3,000 cupcakes a month, as demand is predicted to fall.



Using the graph above to complete the following:

- Label the original break-even output BE1.
- Label and state the margin of safety on the chart before the price increase.
- Plot the new revenue line and label it REV2.
- Label the new break-even output BE2.
- What is the new break-even output level for Mario's Specialist Cakes?

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- Use the chart to work out how much of a profit or loss will be made if 2,000 cupcakes are sold each month at the new price.

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- How does the use of a break-even chart benefit Mario's Specialist Cakes if they increase the selling price or not?

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## SECTION 11: PROFITABILITY ANALYSIS

### Part A: Specification Overview

Analysing profitability is part of the 3.5 Decision-making to improve financial performance within subsection 3.5.2, Analysing financial performance. Students are required to calculate the profitability of gross profit, operations profit and profit for the year.

### Part B: Theoretical Overview

The success of a business can be measured in a number of ways including customer loyalty, market share, brand awareness, employee retention, etc. One of the most popular ways to measure success is through profits and/or profitability.

**Profits** – the amount of money left from revenue once all costs have been deducted.

**Gross profit** – gross profit is revenue less cost of sales. The costs associated with producing the service have been deducted from revenue, such as raw materials and machine costs. Overheads have not been deducted.

$$\text{gross profit} = \text{revenue} - \text{cost of sales}$$

**Operating profit (net profit)** – the profit left after all operating costs have been deducted from gross profit less overheads, those costs that are not directly linked to the production process, e.g. premises costs (rent) and marketing costs. This represents the profit achieved from the core activities of the business.

$$\text{operating profit} = \text{gross profit} - \text{overheads}$$

**Profit for the year (earnings)** – the profit left after all costs have been deducted from operating profit less interest charges on borrowings. This indicates to the board of directors and shareholders how much can be allocated to the shareholders (dividends) and the amount that should be retained for use with future strategies and growth.

$$\text{Profit for the year} = \text{operating profit} - \text{all other costs (e.g. taxes, interest)}$$

**Profitability** – the ability of a business to generate profits above its costs. It is usually expressed as a percentage of revenue (gross profit margin, net profit margin or operating profit margin) or net profit.

**Gross profit margin** – the percentage of revenue which is gross profit. For the year ending March 2014, Ryanair's gross profit margin was 40.1%, which means that for every £1 of revenue earned, 40.1p was gross profit. For the year ending March 2015 it was 35.1%; therefore, for every £1 of revenue earned, 35.1p was gross profit. Visit [www.google.co.uk/finance?fstype=ii&q=NASDAQ:RYAAY](http://www.google.co.uk/finance?fstype=ii&q=NASDAQ:RYAAY)). A higher gross profit margin for a given period or similar rival business indicates that the business is more efficient at managing its costs. A lower proportion of gross profit is generated from revenue. As Ryanair's gross profit margin for the years ending March 2014 and 2015, this indicates that the business was more efficient at managing its costs in 2014 than in 2015.

$$\frac{\text{gross profit}}{\text{revenue}} \times 100 = \%$$

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**Operating profit margin** – the percentage of revenue which is operating profit. For 2015, the Ryanair group's operating profit margin was 17.4%, which means that for every £1.00 of revenue, £0.17 was operating profit. For the year ending March 2014, it was 11.7%; therefore, for every £1.00 of revenue, £0.12 was operating profit ([source: www.google.co.uk/finance?fstype=O](http://www.google.co.uk/finance?fstype=O)). Operating profit margin in comparison to a previous period or similar rival business indicates how more efficient at managing its overheads, as a greater proportion of net profit is generated. Ryanair's operating profit margin improved by £0.05 between 2014 and 2015 this indicates it is more efficient at managing its overheads.

$$\frac{\text{operating profit}}{\text{revenue}} \times 100 = \%$$

**Profit for the year margin** – the percentage of revenue which is profit after all costs. Profit for the year margin indicates how much profit from non-trading activities has been included, including finance charges and interest. For March 2015, the Ryanair profit for the year margin was 15.3%, which means that for every £1.00 of revenue, £0.15 was the profit for the year. For the year ending March 2014, it was 10.4%; therefore, for every £1.00 of revenue, £0.10 was profit for the year ([source: www.google.co.uk/finance?fstype=O](http://www.google.co.uk/finance?fstype=O)). A higher profit for the year margin indicates the business is more efficient at managing its costs, such as finance charges on borrowing, fuel charges and the wage bill. As Ryanair's profit for the year margin improved between 2014 and 2015 this indicates it is more effective at managing its costs, as a greater proportion of profit from its sales. This would indicate to the board of directors that the business should consider a dividend and/or retain profits for future strategies, such as launching its airline's new routes.

$$\frac{\text{profit for the year}}{\text{revenue}} \times 100 = \%$$

Analysing the profitability of a business is of **value** because:

- it allows a business to understand how it has performed;
- identifies areas that require improvement; and
- directors can be assured about whether to allocate a dividend to shareholders or reinvest in a new strategy.

However, the **drawback** is that the process is based on historical data and therefore may not reflect the future. The business may analyse its profitability, but in future years the competitiveness of the market or economic conditions change. Decisions based on historical data may take a while to implement and by the time they are introduced the market may have changed. This could mean that the business misses out on new opportunities or does not have a strategy in place and implemented to deal with increasing competitiveness, because it is too focused on the past.

There are a number of ways the profits or profitability of a business could be improved:

- **Lower costs** – this can be achieved by reducing waste, finding a cheaper supplier or negotiating better profit margins to improve, assuming prices remain the same. However, if a business reduces costs by using the required quality materials or is unreliable at meeting deadlines, the reputation of the business may suffer resulting in the loss of customers.
- **Increase prices** – a higher price will increase profit margins, but this may be achieved by building a strong loyalty towards the product and are likely to purchase from a rival product.
- **Increase sales/output** – if the business sells more products its fixed costs will be spread over more units, resulting in lower unit costs and higher profit margins. However, staff may be under pressure to increase output or sales, possibly leading to mistakes occurring, or a loss of quality.

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### Part C: Example

R C Francis PLC is a global business that produces a range of soft drinks. It has expanded into a market that is highly competitive and dominated by a well-known international brand. In relation to this, the directors have expressed concern regarding its performance.

	2014 (£'000)	2013
Revenue	166,775	151,056
Gross profit	87,784	77,443
Operating profit	22,827	18,338
Profit for the year	17,345	12,386

1. Calculate the gross profit margin for R C Francis PLC for 2013 and 2014.

$$2014 \quad \frac{87,784}{166,775} \times 100 = 52.6\%$$

$$2013 \quad \frac{77,443}{151,056} \times 100 = 51.3\%$$

2. Calculate the change in operating profit margin for R C Francis PLC for 2013 and 2014.

$$2014 \quad \frac{22,827}{166,775} \times 100 = 13.7\%$$

$$2013 \quad \frac{18,338}{151,056} \times 100 = 12.1\%$$

The operating profit margin increased by 1.6% (13.7% – 12.1%)

3. Calculate the change in operating profit margin for R C Francis PLC for 2013 and 2014.

$$2014 \quad \frac{17,345}{166,775} \times 100 = 10.4\%$$

$$2013 \quad \frac{12,386}{151,056} \times 100 = 8.2\%$$

The profit year margin increased by 2.2% (10.5% – 8.3%)

4. Assess the likely importance of the business's financial performance between 2013 and 2014.

The financial position of the business has improved. In relation to the 2013, for every £1 of revenue nearly £0.53 was gross profit, which is an improvement on the 2013 operating profit margin for every £1 of revenue over £0.12 was operating profit. The business appears to be more efficient at managing its costs. The 2013 operating profit margin for every £1 of revenue over £0.12 was operating profit. The business appears to be more efficient at managing its costs. The 2013 operating profit margin for every £1 of revenue over £0.12 was operating profit. The business appears to be more efficient at managing its costs.

The profit year margin has also improved between 2013 and 2014, suggesting the business is generating proportionally less financing charges and/or is more efficient at generating operating profit. For every £1 of revenue in 2014, £0.10 of profit was achieved from revenue and profits from non-trading activities included. In the previous year, for every £1 of revenue £0.08 was the profit for the year. This was an improvement of £0.02.

It is difficult to comment overall on whether the profitability is satisfactory or not. The current position of the business are unknown. However, based solely on the information provided, the directors do not have legitimate reasons to be concerned about the firm's profitability. The data indicates improvement. Its strategy of expanding in competitive markets appears to be successful.

5. Explain how **one** method the business could use to improve its profitability.

See the theoretical overview for an explanation of the possible methods; reducing costs, increasing sales, increasing prices. It is important that the method suggested clearly explains how it will improve, but explains any drawbacks associated with it.

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## Part D: Practice Activity

### Activity 21

Precision, an international jeans manufacturer, has been finding trading conditions in Europe tough going. Sales have been falling within these markets; however, sales in the US business has decided to take advantage of growing popularity in this region by opening more stores. The business believes that US and European consumers in general are concerned about the economy and are choosing to reduce spending to some extent on non-necessity items.

1. Tick the relevant box to identify whether the financial item will have an effect on the cash flow.

Financial item	Cash
Customer cash sales	
Suppliers' trade credit – invoice not paid	
Suppliers' trade credit – invoice paid	
Capital raised from share issue	
Rent payment	
Sale of a fixed asset	
Bank loan	

### Financial data from selected company accounts 2014 and 2013

	2014 (£'000)	2013 (£'000)
Revenue	3,244,431	3,124,567
Gross profit	1,667,192	1,543,210
Operating profit	176,694	154,321
Profit for the year	150,189	143,210
Gross profit margin	51.4%	49.4%
Operating profit margin		
Profit for the year margin	4.6%	4.6%

2. Calculate the gross profit margin for 2013.

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3. Calculate the operating profit margin for 2014.

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6. Precision has been a profitable business over the last two years of trading, but has experienced cash flow problems, especially in 2014. Explain **two** reasons why a profitable business might experience cash difficulties.

## Activity 22

Cineworld, a cinema group with theatre operations in the UK, Ireland and Central Europe, has been the market leader for a number of years. In 2013 it had a 25.5% share of the UK market<sup>18</sup>.

The business has embarked on a period of expansion over the last few years. This includes the acquisition of the arthouse cinema chain, Picturehouse, in 2012 for £47.3 million, which would allow the group to reach a more cultured target market<sup>19</sup>. During the early part of 2015 it opened four new cinemas under the Picturehouse brand. Six more new cinemas were planned for the latter part of 2015. Some of the existing cinemas were refurbished to include the latest technology of new ones, which has included new 'Superscreens'<sup>20</sup>.

Between 2013 and 2014 UK cinema attendance fell by 4.9% to 157.5 million in 2014<sup>21</sup>.

For the financial year ending December 2013 the Cineworld group's gross profit margin was 9.2% and profit for the year margin 5.2%. In the following financial year ending December 2014 the group was £619.4 million, gross profit £180.5 million, operating profit £76.0 million and profit for the year margin 5.2%<sup>22</sup>.

1. Calculate the 2014 gross profit margin.

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2. Calculate the 2014 operating profit margin.

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3. Calculate the 2014 profit for the year margin.

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<sup>18</sup> <http://www.statista.com/statistics/264379/leading-theater-chains-in-the-uk-by-market-share/>

<sup>19</sup> <http://www.theguardian.com/business/2012/dec/06/cineworld-buys-picturehouse>

<sup>20</sup> <http://cineworld-plc.production.investis.com/~media/Files/C/Cineworld-PLC/reports-and-presentations/387476main.pdf>  
<http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/leisure/11722574/Cineworld-hails-success/>

<sup>21</sup> <http://www.cinema.uk.org.uk/the-industry/facts-and-figures/international-comparison/admissions/>

<sup>22</sup> <http://cineworld-plc.production.investis.com/~media/Files/C/Cineworld-PLC/reports-and-presentations/387476main.pdf>

4. Comment on the financial performance of Cineworld between 2013 and 2014

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5. Analyse **one** method Cineworld could use to improve profits and/or profitability

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## SECTION 12: HUMAN RESOURCES D

### Part A: Specification Overview

Calculating and interpreting human resource data is part of the 3.6 Decision-making resource performance section and appears within subsection 3.6.2, Analysing human resource performance. Students are required to calculate and interpret labour turnover and retention rates and employee costs as a percentage of turnover and labour cost per unit.

### Part B: Theoretical Overview

Motivated employees are more likely to give their best efforts and contribute positively to the business. Calculating and interpreting human resource data allows the business to evaluate the resource policies it implements are effective at motivating staff, keeping staff retention high levels of productivity.

**Labour turnover** – this measures the frequency that staff leave a business and new staff are hired. High labour turnover increases the recruitment and selection costs of a business, while productive employees take time to reach the required standard. A high labour turnover could be due to a high number of employees being hired, as the recruitment and selection policy is ineffective, or staff leaving due to few promotional opportunities, poor wages, weak leadership, etc.

$$\frac{\text{number of staff leaving over a period}}{\text{average number of staff}} \times 100 = \%$$

**Retention rates** – this shows the extent to which a business can hold onto its staff. High retention rates show employee loyalty it has and also how happy staff are to remain employed by it. High retention is considered in light of other employment opportunities available outside the business. High retention encourages employees to remain with the business rather than leave. High retention means the business is more successful at holding onto staff.

$$\frac{\text{number of employees at the end of a period} - \text{number of staff leaving during the period}}{\text{average number of staff during the period}} \times 100 = \%$$

**Labour productivity** – this measures the average output per employee. Productivity is the level of output, which helps to keep unit costs low, as fixed costs are spread across a larger volume of output, allowing for a higher profit margin or lower prices for customers, which in itself could increase demand. Productivity is influenced by the quality of recruitment and selection, as appropriate staff should be hired, if it is effective. It is also influenced by employees receiving training, if necessary, in order to enhance their skills. Financial and non-financial methods used to motivate employees influence the motivation of employees and the efforts they give, along with the incentives offered, which can increase output.

$$\frac{\text{output per period}}{\text{number of employees per period}}$$

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**Labour costs as a percentage of revenue** – this measures employee performance. A higher percentage can be an indication of inefficiency, as labour costs are a greater proportion of revenue than in a previous period, and, therefore, if all other factors remain the same, profit margins will be lower. A business will look to reduce the percentage, as a smaller percentage of labour costs relative to revenue, allowing for higher profit margins, once again assuming all other factors remain the same. The labour cost as a percentage of revenue percentage will depend on the industry norms and previous performances, for example.

$$\frac{\text{labour costs per period}}{\text{revenue per period}} \times 100 = \%$$

**Labour cost per unit** – this measures the labour cost per unit of output. It covers direct labour costs, such as National Insurance and pension contributions. In theory, if the business increases its output, the labour cost per unit should fall, as the business gains from economies of scale, e.g. bulk-buying of materials. A lower labour cost per unit is preferable to the business, as higher profit margins will be achieved due to costs being lower. Whether a lower labour cost per unit is advantageous to the business will depend on whether the business remains price-competitive, if they sell a price elastic product, and/or whether other factors remain the same.

$$\frac{\text{labour costs per period}}{\text{output per period}} = \text{£}$$

### Part C: Example

Rakhim Hairstyling Ltd, a Sheffield-based hairdressing salon, usually employs six stylists. In April 2014, the business provided to 720 customers, while in May it was 576. Several stylists have left over the year due to low wages and lack of promotional opportunities available within the business. Furthermore, the business manager does not pay any attention to their opinions on how to improve the business. In 2015, four stylists left the business, while in 2015 four left. However, staff numbers continued to remain constant at six.

Due to lower demand the revenue decreased from £32,400 in April to £25,920 in May. In April, the hours worked the wage bill fell from £9,580 (April) to £8,600 (May).

The owners are concerned about the impact the labour turnover is having on the business. The business's profits were lower than expected.

1. Calculate the labour turnover for Rakhim Hairstyling Ltd in 2014 and 2015.

$$2014 \quad \frac{2 \times 100}{6} = 33.3\%$$

$$2015 \quad \frac{4 \times 100}{6} = 66.6\%$$

2. Calculate the labour retention for Rakhim Hairstyling Ltd in 2014 and 2015.

$$2014 \quad \frac{6-2}{6} \times 100 = \frac{4}{6} = 66.6\%$$

$$2015 \quad \frac{6-4}{6} \times 100 = \frac{2}{6} = 33.3\%$$

3. Calculate the labour productivity for Rakhim Hairstyling Ltd in April and May.

$$\text{April} \quad \frac{720}{6} = 120 \text{ customer per employee}$$

$$\text{May} \quad \frac{576}{6} = 96 \text{ customers per employee}$$

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4. Calculate the employee costs as a percentage of revenue for Rakhim Hairstyling Ltd for April and May.

$$\text{April} \quad \frac{£9,580}{£32,400} \times 100 = 29.6\%$$

$$\text{May} \quad \frac{£8,600}{£25,920} \times 100 = 33.2\%$$

5. Calculate the labour cost per unit for Rakhim Hairstyling Ltd for April and May.

$$\text{April} \quad \frac{£9,580}{720} = £13.31$$

$$\text{May} \quad \frac{£8,600}{576} = £14.93$$

6. Comment on whether the owners' concerns about the business are valid or not.

The labour turnover of the business has doubled over the last two years. Staff are being recruited on a more frequent basis. This will increase the recruitment and selection costs and the costs of replacing staff increases. The higher costs could impact on the profits of the business. The higher costs could impact on the profits of the business if the staff are not working to their full potential initially, as they will require time to get up to speed in the way in which the salon operates. This could initially result in a service not being as good as the number of customers possible.

In addition, the employees are less likely to remain with the business when they are recruited and 2015. In 2014, the firm was able to retain 66.6% of staff, but by the end of 2015, this had fallen to 33.3%, thus indicating that staff are disenchanted with their employment and are seeking alternative opportunities elsewhere.

The labour turnover is possibly a contributory factor of the decline in labour productivity. The number of customers per employee decreased by 24 (120 – 96) customers per employee, as not only do new staff need time to get up to their optimum level, but existing staff morale may be low if they are not being properly managed, thus affecting their efforts. Furthermore, the frequent change in staff could lead to clients choosing to switch to rival salons, if they believe the standard of service provided by the new staff are now employed at one of these. However, as the business is not providing a service which is different from the difference could be attributed to customers receiving a service which is not as good as the hairstyling time than April.

Employee costs as a percentage of revenue indicate the business is not as efficient in May. The revenue in May is more of May's revenue in comparison to April equates to employee costs; the revenue in May remained the same, the business would have a lower profit.

Furthermore, the labour cost per customer was £13.31 in April, but by May it had increased to £14.93. The business is not as efficient at providing the hairdressing service to each customer. The cost per customer is £1.62 (£14.93 – £13.31) more per customer in May.

Overall, the owners should be concerned as staff are leaving on a more frequent basis. The business is not as efficient in its staff retention rate falling by half. In addition, its labour productivity is declining. The costs related to providing the service are increasing on average. This has the potential for the business's reputation being damaged and profits declining.

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7. Analyse one method the owners could use to improve the labour turnover and business.

Possible methods:

- *Increase wages – an increase in wages may encourage employees to do their best efforts, if they are motivated by money, in accordance with the business's objectives. This would reduce the recruitment and selection costs, thus helping to improve the business's profitability. This could enable the business to provide a higher standard of customer care, which would enable the business to be differentiated in the market. However, not all employees will be motivated by this strategy may not have the desired effect on all of them.*
- *More promotional opportunities – some employees may be encouraged to do their best efforts, if they believe there is the possibility of promotion. If the business may not be possible to provide many promotional opportunities, then these become available elsewhere.*
- *Management training – the manager appears to be using an autocratic style of management, which may lead to low employee morale, if they believe their viewpoint is not recognised. The manager should encourage the manager to review and adapt their style of management to encourage the participation of employees in some aspects of decision-making, which will improve their motivation. Training will only be effective, if the manager is willing to change their management accordingly.*

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### Part D: Practice Activity

## Activity 23

*Brecia Bicycles Ltd produces folding bikes predominantly for the UK, USA and Asia known for the high quality handmade bikes produced.*

*Its performance measurement data is as follows:*

	2013	
<b>Output</b>	6,000	
<b>Average number of employees</b>	30	
<b>No. of staff leaving the firm</b>	4	

*In 2012 the business introduced a bonus payment scheme. Each employee receives a bonus payment if they exceed their production targets with regards to output and quality.*

*The business prides itself on the training that is provided to new and existing employees.*

*New employees are provided with comprehensive induction training, which aims to increase their familiarity with most operational areas of the business regardless of whether they are new or not and increases their awareness of most employees. The training encourages them to share ideas they believe would improve the business.*

1. Calculate the change in labour productivity in between 2013 and 2015.

[illegible]

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2. Comment on the labour productivity of the business between 2013 and 2015.

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3. Calculate the labour turnover for 2013 and 2015.

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4. Comment on the labour turnover of the business between 2013 and 2015.

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5. Calculate the labour retention for 2013 and 2015.

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6. Comment on the labour retention of the business between 2013 and 2015.

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7. Identify and explain **two** factors that could have contributed to the business's and/or labour productivity.

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### Activity 24

*Furniture Delight manufactures high quality bedroom furniture that is aimed at high quality retailers based in West Yorkshire and sells to high quality retailers across the UK and directly to the public. One of its main rivals is Haynes Furniture Designs. Below are its employee performance metrics compared to its rival:*

	<b>Furniture Delight</b>	<b>Haynes Furniture Designs</b>
<b>Output</b>	476	312
<b>Average number of employees</b>	14	18
<b>No. of staff leaving the firm</b>	3	5
<b>Labour costs</b>	£201,200	£250,000
<b>Revenue</b>	£750,000	£850,000

1. Calculate the labour turnover for Furniture Delight and Haynes Furniture Designs.

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2. Calculate the labour productivity for Furniture Delight and Haynes Furniture Designs.

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3. Calculate the labour costs per unit for Furniture Delight and Haynes Furniture.

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4. Calculate the employee costs as a percentage of revenue for Furniture Delight Designs.

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5. Analyse the effectiveness of the workforce for each business.

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## SECTION 13: AS ASSESSMENT ACTIVITIES

### Guidance

The assessments that follow are presented in a similar format to the Business 1 and 2 assessments, but are slightly adapted so there is a greater opportunity to practise some of the numerical skills covered in these units; therefore, the format used is not an exact replica of the AQA style. Additional opportunities would be provided.

The analytical- and evaluative-style questions require students to focus on business from a different angle, thus encouraging them to appreciate that a confident understanding of the concepts, which may seem find challenging, could assist in making that difference between the levels of response.

Once students have completed each unit, along with the practice activities within the units, if deemed appropriate, they could be set the relevant assessment activity to complete.

**Business 1** is worth 80 marks and students have 1 hour and 30 minutes to complete it. They should spend one minute on each mark. If a question is worth six marks, they should spend six minutes answering it. Section C has two data-response stimuli with questions; therefore, they should read and analyse each of these, along with making appropriate notes at the side of the stimulus. They should read them twice. The paper is worth 50% of the AS and is structured as follows:

- **Section A** – 10 multiple-choice questions (MCQs) worth 10 marks
- **Section B** – short-answer questions worth approximately 20 marks
- **Section C** – two data-response stimuli with questions worth approximately 20 marks

**Business 2** is also worth 80 marks and students have 1 hour and 30 minutes to complete it. They should read the source material to answer the questions. As it is quite lengthy they should be advised to read and analyse it, along with making brief notes at the side of it. Ideally, they should read it twice. Once the source material has been read and analysed the students should answer each question. The paper is worth 50% of the AS and is based on a compulsory case study. There are eight questions.

On completion the assessment could be marked by the class teacher, peer-assessed or self-assessed themselves using the mark scheme. The suggested answers are not definitive and should be given suitable recognition.

Once the assessment has been marked students could use this to analyse their performance and identify areas which may benefit from further review.

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QA AS Business  
L31/1  
Paper 1: Business 1

You must have:



A black ballpoint pen.  
Write the top of this paper with your name.  
Write answers in the spaces provided.

The mark for this paper is 80.  
The number of questions are shown in brackets.

Read the questions carefully before you start to answer it.  
Manage your time.  
Answer every question.  
Stop if you have time at the end.

Section	Mark
A	/ 10
B	/ 20
C	/50
<b>Total</b>	<b>/80</b>

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## SECTION A

Answer **ALL** the questions in this section.

Only one question per answer is allowed.

Tick one of the boxes to indicate your answer.

1. Mercedes has a range of costs that are incurred in manufacturing its vehicles. Which of the following is a variable cost?  
☐ A. Production manager's salary  
☐ B. Engines  
☐ C. Building insurance  
☐ D. National TV advertising
2. Pizzeria Ltd is a national chain of pizza restaurants. The business recently announced a 5% increase in profit in comparison to the previous year. Which of the following has contributed to this increase?  
☐ A. A competitor closing 10% of its restaurants  
☐ B. The number of employees falling by 3%  
☐ C. A new deal with a supplier resulting in an 8% saving on ingredient costs  
☐ D. Property (restaurants) rental costs increasing by 5%
3. Market growth is:  
☐ A. the total unit sales or income for a business or a product over a specific period of time  
☐ B. the percentage change in income or unit sales for a business or product over a specific period of time  
☐ C. a market's total unit sales or income over a specific period of time  
☐ D. the percentage change in a market's total unit sales or income over a specific period of time
4. A research sample with a confidence level of 90% means:  
☐ A. the results of the sample will be right 9 times out of 20  
☐ B. the results of the sample will be right 9 times out of 25  
☐ C. the results of the sample will be right 18 times out of 20  
☐ D. the results of the sample will be right 18 times out of 25
5. Which of the following products would have price inelastic demand?  
☐ A. Luxury holiday to Barbados  
☐ B. Electricity  
☐ C. Gap clothing  
☐ D. Theme park entrance tickets
6. Supermarkets sell a range of products. Which out of the following would be expected to have the most elastic demand based on its income elasticity of demand?  
☐ A. -0.4  
☐ B. +0.4  
☐ C. +0.95  
☐ D. +1.25
7. Rocco Ltd manufactures training shoes. It had a favourable advertising variance in 2015. This means:  
☐ A. the business spent £10,000 more on advertising than it budgeted for 2015  
☐ B. the business spent £10,000 on advertising in 2015  
☐ C. the business spent £10,000 less on advertising than it budgeted for 2015  
☐ D. the business will spend £10,000 on advertising in the next financial year

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8. A business's opening cash balance was £46,000 at the start of the year, but the following factor is the most likely cause?
- ☐ A. Cash sales
  - ☐ B. Good stock control
  - ☐ C. Trade customers are given 30 days to settle invoices and suppliers are paid
  - ☐ D. Overtrading
9. In April 2016 Apple announced quarterly sales of \$50.56bn (£34.39bn), down on the first fall in sales for the company since 2003.<sup>23</sup> Which of the following could help to improve sales?
- ☐ A. Expand into new markets
  - ☐ B. Withdraw from markets
  - ☐ C. Decrease promotion
  - ☐ D. Decrease sales volumes
10. King Kebab, a collection and delivery kebab business, has a capacity of 60,000 kebabs per year. It sold 31,000 last year. Which of the following is the correct capacity utilisation of the business?
- ☐ A. 48.4%
  - ☐ B. 51.7%
  - ☐ C. 55.0%
  - ☐ D. 58.3%

**Question 10 is the last question in Section A.**

**Section B starts on the next page.**

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<sup>23</sup> <http://www.bbc.co.uk/news/business-36146336>

## Section B

Answer **all** questions in the section.

11. A local business has the following quarterly data (three months):

- selling price per unit = £23.50
- variable cost per unit = £11.50
- fixed costs = £42,000.00

Calculate the firm's break-even point in units.

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12. Explain **one reason** why a business engages in break-even analysis.

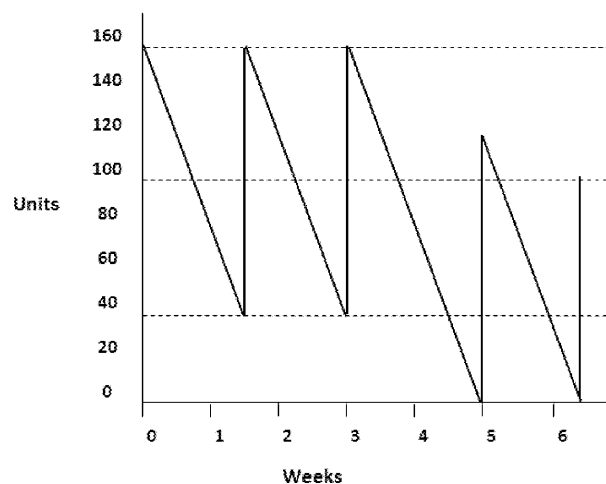
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13. Drovers Engineering Ltd supplies fire protection systems to the oil and gas industry. The company has dealt with a number of customer complaints regarding orders being delivered in incorrect quantity. An inventory control chart has been produced to assist with the complaints.



Use the inventory control chart on the previous page to explain why the business has problems meeting its business customer expectations regarding orders.

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14. Analyse **one way** Drovers Engineering Ltd might resolve its inventory control

Question 14 is the last question in Section B.

Section C starts on the next page.

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## Section C

Answer **all** questions in this section.

15.

### Moretti Ltd

Moretti Ltd, the manufacturer of the premium crisp brand 'Rocco', operates in the UK market alongside established brands such as Kettle and Tyrrells. Since the brand's launch in 2014, it has enjoyed considerable success, which has also been mirrored in its North American market. The brand entered in 2014. Within the UK the brand has an income elasticity of demand of 0.8.

The UK crisp market has changed in recent years with consumers becoming more health conscious, resulting in more choosing to purchase healthier snacks that are perceived less as indulgent.

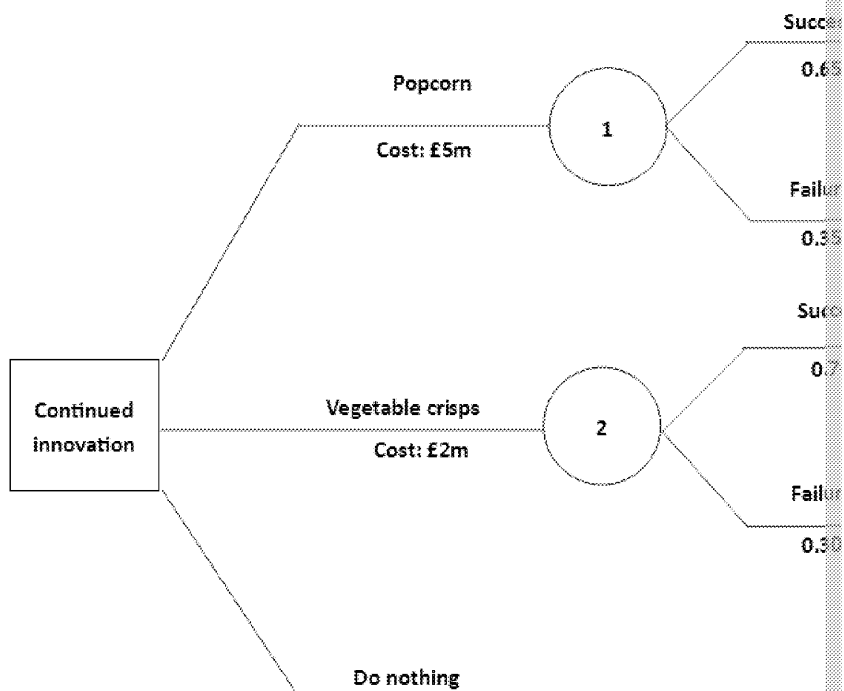
In 2015, the UK crisps market was valued at £923.2 million, which represents a 5% increase on the previous year.<sup>24</sup>

UK sales of popcorn increased by 40% to £105m in 2014 with the established brands benefiting, as its revenue increased by 20% to £35.1m in 2014. The growth in the market encouraged premium popcorn brands to enter, including Metcalfe's Skinny Pop and On the Border Poshcorn.<sup>25</sup>

In 2013, the vegetable crisp market was valued at £40m with continued growth expected.

Moretti Ltd feels it will continue to enjoy high levels of success within the UK market due to current trends. However, it continues to investigate new opportunities in the UK and overseas in accordance with its innovative culture. It has investigated launching its own premium vegetable crisps range both under the Rocco brand name.

**Figure 1:** Moretti Ltd's decision tree for new products



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<sup>24</sup> <http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/11581694/Soaring-snack-sales-spell-it-for-crisp-makers.html>

<sup>25</sup> <http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/11809259/Popcorn-explosion-drives-sales.html>

<sup>26</sup> <http://www.lincolnshirelife.co.uk/posts/view/crisps-for-the-connoisseur>

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- a) **Using figure 1 only**, advise Moretti Ltd on whether it should launch a potato vegetable crisps range.

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- b) To what extent should Moretti Ltd focus on launching a new product in the UK crisp market?

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### Collymore Hotels Ltd

Collymore Hotels Ltd is a relatively new small budget hotel chain with five hotels in England. Most are located in coastal regions with good transportation links, which appeal to domestic and international tourists, as well as business travellers.

**Figure 1:** Collymore Hotels Ltd income statement extract

	2015 (£m)	
<b>Revenue</b>	4.2	
<b>Profit for the year</b>	1.1	
<b>Profit for the year margin</b>		

Collymore Hotel Ltd runs an employee profit-sharing scheme for those who have been employed with the business for at least one year. Staff are encouraged to suggest improvements. Any implemented ideas result in the employee making the profit share of any savings generated by it. If more than one employee makes the profit share of any savings is distributed equally between all those involved in its proposal. The business has an employee of the month award in each hotel with the winning employee receiving a £250 bonus.

The business allocates at least £1,500 per employee to the training budget. The 2015 budget was £135,000. This is used for both internal and external courses, as well as for those who are studying for professional qualifications related to the hospitality industry.

Collymore Hotel Ltd's owner, Isabella Hudson, feels that the positive relationships with customers contributed to the business having a higher capacity utilisation than the industry. At its peak season it is 92% and at other times at least 85%.

**Figure 2:** Collymore Hotels Ltd human resources data extract

	2015	
<b>Average number of staff</b>	90	
<b>No. of staff leaving the firm</b>	2	
<b>Retention rate</b>	97.8%	

Collymore Hotels Ltd usually ranks highly in customer feedback surveys and has won an award for customer service. Although it is a relatively small hotel chain the management has aspirations to double its size within five years. Budget brands are expected to continue hotel developments until 2018.<sup>27</sup>

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<sup>27</sup> <http://www.bighospitality.co.uk/Trends-Reports/Budget-brands-to-dominate-UK-hotel-development-over-the>

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- a) Using both **figure 1** and **figure 2**, comment on the profitability and employment of Collymore Hotels Ltd.

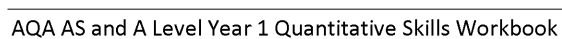
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END OF QUESTIONS

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**AQA AS Business**  
**7131/2**  
**Paper 2: Business 2**

**Insert to 7131/2**

**Source 1: Puddle Down Farm**

Puddle Down Farm is located in East Anglia and owned by the Braithwaite family, a dairy farm with 350 cows.

In 1984, a milk quota was introduced by the European Parliament, which limited the market (sell) in a year. If the maximum level was exceeded a charge would be incurred in order to ensure its survival in the 1980s, and so that excess milk above the quota 'drains', the business expanded into ice cream production.

The family spotted a business opportunity while holidaying in the North West. The similar position to themselves had expanded into the real dairy ice cream market, returned to East Anglia and carried out market research to identify whether it was viable. The results indicated that there was a gap in the market for a similar business very close to home.

In 1985, one of the farm buildings was converted for ice cream production. It included a viewing area where visitors to the farm could see the cows being milked and ice cream manufactured, not only using the milk from its organically reared cows, but also sourcing local, where possible. It believes that these factors, along with its high quality standards, allow it to maintain a high level.

Initially farm visitors had the opportunity to buy three different flavours of ice cream, achieving resounding success with the farm broadening its product range to 18 different flavours for sale to farm visitors, but also regional restaurants, pubs, hotels and retailers. The business is now a well-known name in the North West region.

Each litre of ice cream is sold for £3.25 with production costs for each litre at £0.05 for labour, £0.26 ingredients and £0.14 packaging. The business has monthly fixed costs of £1,500 and a capacity of 2,500 litres a month and sells at least 2,000 litres.

The family became concerned during the recent downturn in the economy that sales might fall and look to reduce spending. To assist in the management of the business a budget was prepared to show income and profit. Last month's budgeting statement is below.

**Income budget**

	<b>Budget</b>
Ice cream sales	£6,300
Café sales	£1,350
Bed and breakfast sales	£1,500
<b>Total income</b>	<b>£9,150</b>

**Expenditure budget**

Labour
Stock
Other costs
<b>Total expenditure</b>

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Timothy, the Braithwaite's oldest son, believes that it is a good time to expand the business. He has done some research and believes that an ice cream parlour should be added to the farm which is used for children's parties. This would involve some construction work, as one of the barns is being converted for this purpose.

Part of his research found UK manufacturers' sales of ice cream, lollipops and other confectionery increased since 2011. In 2014, sales were £722.8m, an increase of £88.6m since 2011, an increase of 14.0% and 27.8% respectively.<sup>28</sup>

Timothy has put forward a business plan to his parents, which includes the following forecast for the first quarter. Into consideration all areas of the business.

	Quarter 1
<b>Cash inflows</b>	
Ice cream sales	£18,000
Café sales	£3,800
Bed and breakfast sales	£4,300
Ice cream party sales	£1,600
<b>Total cash inflows</b>	£27,700
<b>Cash outflows</b>	
Construction work*	£35,500
Stock	£3,400
Labour	£13,500
Product storage	£420
Utilities	£830
Administration and maintenance	£900
<b>Total cash outflows</b>	£54,550
Opening balance	£24,500
Net cash flow	-£26,850
Closing balance	-£2,350

Timothy believes that the ice cream could be sold at £4.25 per litre rather than £3.50 per litre for the current brand, and this could help with meeting some of the construction costs, along with the fact that the farm can produce up to 1,000 litres a month. He has worked out the price elasticity of demand as  $-0.1$ .

In addition, the business has been approached by a national supermarket buyer who has offered to supply all branches to be supplied with 4,000 litres of ice cream a month. Assuming all goes well, the supermarket will sell the brand in all its UK supermarkets. They will pay the business £4.25 per litre.

If the supermarket order was accepted the business would need to increase capacity in the short term. If the ice cream was launched nationally by the supermarket, the business would need to move production away from the farm to a bigger production unit or outsource some of the production to a manufacturer, otherwise it would not be able to meet demand. Timothy and his parents will give careful consideration to the options available.

\*Note: The construction costs in the cash flow forecast relate to either opening up the farm or increasing the capacity of the business.

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<sup>28</sup> <http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/prodcom/products-sold-by-uk-manufactures/sty-prod-summer.html>



QA AS Business  
L31/2  
Paper 2: Business 2

You must have:



A black ballpoint pen.  
Write the top of this paper with your name.  
Write your answers in the spaces provided.

The mark for this paper is 80.  
The number of questions are shown in brackets.

Read the questions carefully before you start to answer it.  
Manage your time.  
Attempt every question.  
Check your answers if you have time at the end.

Question	Mark
1	/ 5
2	/ 3
3	/ 9
4	/ 4
5	/ 9
6	/ 16
7	/ 16
8	/ 18
<b>Total</b>	<b>/80</b>

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3. Analyse the benefits to Puddle Down Farm of producing a monthly budget.

Extra space

4. The price elasticity of demand for the Puddle Down Farm's ice cream has been a value of  $-0.1$ . Explain what this value means.

5. Analyse the expected cash flow position of Puddle Down Farm for both quarters.

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6. To what extent could operating at full capacity be a problem for Puddle Down the supermarket order?

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7. Assuming Puddle Down Farm accepted the supermarket order, to what extent beneficial to the business?

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8. Advise Timothy and his parents on whether they should increase the product parlour for children's parties **or** whether they should accept the supermarket

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## SECTION 14: SUGGESTED ANSWERS TO PRACTICE

### Section 1: The measurement and importance of profit

#### Activity 1

1.  $\frac{£1,450}{20} = £0.73$  (jewellery kit cost) – 1 mark

$2 \times £0.75 = £1.50$  (labour cost) – 1 mark

$£0.73 + £1.50 + £0.50$  (tissue paper) +  $£0.15$  (Swarovski like crystal) =  $£2.88$  – 1 mark

$£6.99 - £2.88 = £4.11$  added value – 1 mark

Total of **4 marks** available

2. Possible responses:

- The unique design makes the product stand out from others in the market place and therefore charge a higher price than similar businesses, whose products are not considered as unique.
- A consumer does not necessarily have the time to create their own beaded jewellery and therefore find it more convenient for them to buy the product already created than produce it themselves.
- The presentation of the jewellery in a box with soft tissue paper could create a perceived value for consumers paying above the unit cost to acquire the product.

1–2 marks            limited knowledge

3–4 marks            reasonable knowledge or reasonable application

5–6 marks            good application

Total of **6 marks** available

#### Activity 2

1.  $\$115.00 + \$24.75 + \$15.00 + \$14.00 + \$5.00 + \$11.00 + \$80.25 + \$5.00 = \$270.00$  mark

2 marks if correct or 1 mark with one error

$\frac{20 \times \$270.00}{100} = \$54.00$  – 2 marks if correct or 1 mark with one error

$\$54.00 + \$270.00 = \$324.00$  – 1 mark

$\$499.00 - \$324.00 = \$175.00$  added value – 1 mark  
to pay above the unit cost to access the product.

Total of **6 marks** are available

2. Possible answers:

Apple has added value to the iPad Air 2 as follows:

- The design and functionality of the computer tablet differentiates it from other products, resulting in consumers being willing to pay above the market average, as the product is innovative and revolutionary. Consumers are willing to pay above the unit cost to acquire the brand;
- The consumer can request a personal laser engraving on the iPad Air 2 for free, which adds value compared to that of rivals in the marketplace;
- The regular software updates encourage the consumer to believe the high added value of having a product which remains up to date for a long period of time; and
- The product is perceived to be at a higher quality standard than similar products, due to the strength of the Apple brand. This helps the product to stand out in the marketplace as unique and the best.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** are available

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## Section 2: Understanding management decision-making – decision trees

### Activity 3

1. Surrey:

$$(\text{£}18.0\text{m} \times 0.7) + (\text{£}6.0\text{m} \times 0.3)$$

$$\text{£}12.6\text{m} + \text{£}1.8\text{m} = \text{£}14.4\text{m} \text{ expected value}$$

$$\text{£}14.4\text{m} - \text{£}2.5\text{m} = \text{£}11.9\text{m} \text{ net gain}$$

The option of opening a Surrey operation has an anticipated net gain of £11.9m.

China:

$$(\text{£}22.0\text{m} \times 0.6) + (\text{£}8.0\text{m} \times 0.4)$$

$$\text{£}13.2\text{m} + \text{£}3.2\text{m} = \text{£}16.4\text{m} \text{ expected value}$$

$$\text{£}16.4\text{m} - \text{£}5.5\text{m} = \text{£}10.9\text{m} \text{ net gain}$$

The option of opening a Chinese operation has an anticipated net gain of £10.9m.

See **Activity 3 Q1** answer for guidance on allocating marks

*Total of 8 marks are available*

2. Based purely on the decision tree, the business should open a Surrey operation (1 mark) as it has a higher net gain than China (1 mark) at £1.0m more (1 mark).

*Total of 3 marks available*

3. Possible answers:

- business objectives
- mission statement
- business ethics
- key stakeholders' viewpoints
- availability of the required resources, including employees with the right skills
- expertise of the management team that will lead whichever option is taken
- impact on employees
- impact on the business's brand
- expected economic climate in the Asia-Pacific market, e.g. level of economic growth
- stability of the political environment, e.g. is there likely to be a change in government and its implications for the business?
- source of the estimates and when they were gathered
- which option allows the business to operate at the expected standard in terms of quality and cost
- protectionist measures within the Asia-Pacific market, and the extent to which they affect the market

Each qualitative factor:

1 mark identifying a factor;

1 mark some development of the qualitative factor; or

2 marks good development of the qualitative factor in relation to the business

*Total of 6 marks available*

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## Activity 4

1. Norway:

$$(\text{£}35.0\text{m} \times 0.75) + (\text{£}20.0\text{m} \times 0.25)$$

$$\text{£}26.25 + \text{£}5.0\text{m} = \text{£}31.25\text{m expected value}$$

$$\text{£}31.25\text{m} - \text{£}10.0\text{m} = \text{£}21.25\text{m net gain}$$

The option of launching the electric cars in Norway results in an anticipated net gain

China:

$$(\text{£}65.0\text{m} \times 0.55) + (\text{£}30.0\text{m} \times 0.45)$$

$$\text{£}35.75 + \text{£}13.5 = \text{£}49.25 \text{ expected value}$$

$$\text{£}49.25\text{m} - \text{£}22.0\text{m} = \text{£}27.25\text{m net gain}$$

The option of increasing capacity in China results in an anticipated net gain of £27.3m

For each net gain:

1 mark correct formula

1 mark correct numbers

1 mark correct answer for expected value

1 mark correct answer for net gain

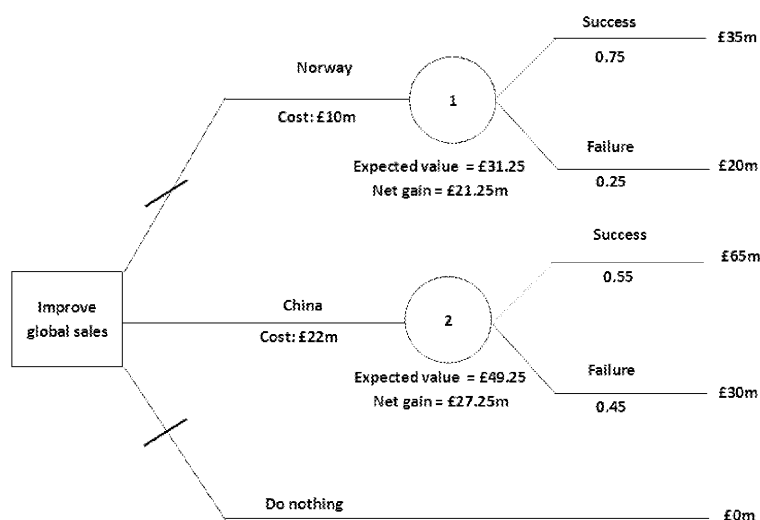
Total of 8 marks available

2. Based purely on the decision tree, the business should increase capacity in China (1 mark) gain than Norway (1 mark) at £6.0m more (1 mark).

Total of 3 marks available

3. 1 mark each for placing a strike sign through the 'Norway' and 'Do nothing' options

Total of 2 marks available



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4. Possible answers:

- options are clearly and soundly set out
- encourages research, thereby enhancing the quality of the information used and its use.
- careful consideration is given to the options available, rather than being focused on one option
- the risks of each option are carefully considered; therefore, an informed choice can be made
- clearly shows the financial implications of each option and the level of risk associated with each
- China provides a higher net gain the business might decide to go for Norway, as it is a more stable country
- during its construction it might flag up options the business had not initially considered
- it encourages management to think through each option carefully
- show the opportunity cost of a decision in financial terms

0–3 marks      *limited understanding with little focus on the requirements of the question*

4–6 marks      *reasonable understanding with some focus on the question*

7–9 marks      *good understanding with good focus on the question*

Total of **9 marks** available

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### Section 3: Value of primary and secondary market research (market size, growth, and market share)

#### Activity 5

1.  $307,569.9 + 191,425.8 + 68,080.7 + 81,415.8 + 56,529.3 + 539,691.3 = 1,244,739.8$

1 mark identifying the correct formula and data

1 mark correct answer

Total of 2 marks available

2.  $320,219.7 + 225,850.6 + 104,094.7 + 72,748.2 + 65,618.6 + 625,368.3 = 1,423,900.3$

See Activity 5 Q1 answer for guidance on allocating marks

Total of 2 marks available

3.  $1,423,900.3 - 1,244,739.8 = 179,160.5$  1 mark

$$\frac{179,160.5}{1,244,739.8} \times 100 = 14.4\% \text{ -- 1 mark -- correct formula and data}$$

The mobile phone market grew by **14.4%** between 2015 and 2014.

1 mark correct answer

1 mark identifying the market had grown rather than decreased

Total of 4 marks available

4. Apple:  
 $\frac{191,425.8}{1,244,739.8} \times 100 = 15.4\%$

Apple's market share in 2014 was 15.4%.

Samsung:  
 $\frac{320,219.7}{1,423,900.3} \times 100 = 22.5\%$

Samsung's market share in 2015 was 22.4%.

Marks are awarded based on the following :

1 mark correct formula

1 mark correct numbers

1 mark correct answer

Total of 3 marks available

5. Apple:  
 $225,850.6 - 191,425.8 = 34,424.8$

$$\frac{34,424.8}{191,425.8} \times 100 = 18.0\% \text{ increase in sales growth}$$

Samsung:  
 $320,219.7 - 307,596.9 = 12,622.8$

$$\frac{12,622.8}{307,596.9} \times 100 = 4.1\% \text{ increase in sales growth}$$

Marks for the above are based on the following with 3 marks available for each

1 mark correct formula

1 mark correct data

1 mark correct answer

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Apple has had a higher rate of sales growth than Samsung, as Apple's increased 13.9% and Samsung's 4.1%.

1 mark identifying an increase

1 mark identifying the amount of increase

Total of **8 marks** available

6. All mobile phone businesses excluding Samsung and Lenovo have experienced a growth in sales between 2014 and 2015, including Apple, thus indicating the market has become more competitive. Apple's sales growth was 13.9% more than Samsung's 4.1% at 18.0%.

As the mobile phone market has become more competitive Apple appears to be more successful than Samsung, as it managed to increase its market share by 0.5% (15.9% – 15.4%), while Samsung's market share decreased by 2.2% (22.5% – 20.3%). Furthermore, its sales are increasing at a higher rate than Samsung's. The extent to which the market will affect the competitiveness, due to 'exploding battery' writing the resource.

or

Apple had an improved market share between 2015 and 2014 by 0.5% and had a sales growth of 13.9% compared to Samsung's 4.1% and this would suggest the American business is the most successful. However, Samsung is more successful, because in 2015 it sold 94,369.1 thousand (320,219.7 – 225,850.6) and its market share was 6.6% (22.5% – 15.9%) higher.

1 mark judgement presented

2 marks judgement presented and substantiated

3–4 marks judgement presented and substantiated with evidence

Total of **4 marks** available

## Activity 6

1.  $14,520 \times £1.07 = \textbf{£15,536}$  (£15,536.4) million

1 mark correct formula

1 mark correct data

1 mark correct answer

Total of **3 marks** available

2. The UK soft drinks market's size was 14,520 million litres in 2013, which represented a 2.0% increase on the previous year, 2012.

14,520 million litres represent 102.0% (100% + 2.0%) of the 2012 market size based on volume

$$\frac{14,520}{102.0} \times 100 = \textbf{14,235 (14,235.2) million litres -2012 market size based on volume}$$

1 mark formula nearly correct or

2 marks correct formula

1 mark most data correct or

2 marks all data correct

1 mark correct answer based on the data used

Total of **5 marks** available

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3. The UK soft drinks market was valued at £15,536 million in 2013 (answer from Activity 6 Q1) which is an increase of 4.1% on the previous year, 2012.

£15,536 million represents 104.1% (100% + 4.1%) of the 2012 market size based on value

$$\frac{15,536}{104.1} \times 100 = \text{£14,924 (14,924.1) million} \quad \text{— 2012 market size based on value}$$

See **Activity 6 Q2** answer for guidance on allocating marks

Total of **5 marks** available

4. The UK soft drinks market is 14,520 million litres in size. The calculation from Q1 is used to find the size of the carbonated drinks market. The carbonated drinks market has a 45% market share of the UK soft drink market.

$$\frac{14,520 \times 45}{100} = \text{6,534 million litres in 2013}$$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

5.  $2,360 - 2,135 = 225$  1 mark – correct formula and answer

$$\frac{225}{2,135} \times 100 = 10.5\% \quad 1 \text{ mark – correct formula and data, 1 mark correct answer}$$

The bottled water market **grew by 10.5%** between 2012 and 2013.

1 mark identifying the market had grown

Total of **4 marks** available

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## Section 4: Marketing data

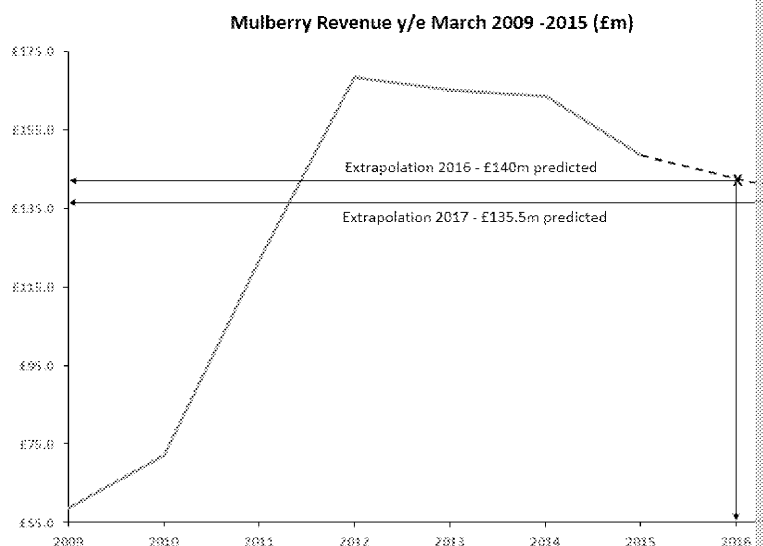
### Activity 7

1. The fact that Mulberry experienced significant increases in revenue when the disposable income segment increased significantly suggests a **positive correlation** between the two variables. As the disposable income segment increases, so will the sale of Mulberry products. However, when disposable income

- 1 mark      states the type of correlation  
1–2 marks      explains the type of correlation; or  
3–4 marks      explains the type of correlation in relation to the scenario

Total of **5 marks** available

2.



- 1 mark each      extrapolation through to 2016 and 2017  
1 mark each      identifying on the chart the prediction for 2016 and 2017; or  
1 mark each      2015: £140m and 2017: £135.5m

Total of **6 marks** available

3. Possible answers:

Mulberry is unlikely to be happy with the predictions:

- it indicates that sales will continue to decline in both 2016 and 2017
- assuming all other factors remain the same this represents also a fall in profits
- potentially, this could result in a fall in market share, if its competitors are able to
- as a high-profile brand any fall in sales could result in loyal customers being lost or
- adds to their lives

However, Mulberry may not be dissatisfied if:

- its competitors are expected to experience a similar decline
- the predictions still allow sales targets to be achieved
- the business is looking beyond 2017 and expects higher sales beyond this
- new product launches or entering new markets, for example, are likely to result in

The extent to which Mulberry may or may not be dissatisfied will depend on its business objectives fit in with these or not.

- 1–3 marks      limited response with little focus on the question  
4–6 marks      reasonable response with some focus on the question  
7–9 marks      a good response with good focus on the question

Total of **9 marks** available

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## Activity 8

1. On the whole it appears there is a **negative correlation** between the UK unemployment rate and new registrations within the UK. This indicates that as the unemployment rate rises fewer new cars are registered, thus indicating lower demand for this vehicle. Consumers who are no longer unemployed possibly are more likely to purchase a new car, as their disposable income is significantly improved by gaining employment. As the unemployment rate rises fewer new cars are registered, thus indicating lower demand for this vehicle. Consumers who are no longer unemployed possibly are more likely to purchase a new car, as their disposable income is significantly improved by gaining employment.

See **Activity 7 Q1** answer for guidance on allocating marks

Total of **5 marks** available

2. Possible answers:
  - as the unemployment rate increases Ford can expect that demand for the Fiesta will result in lower revenue and profits, assuming all other factors remain the same
  - due to lower demand the business will look to downsize on a temporary basis to match demand, while with higher demand the opposite occurs
  - its market share potentially may remain unchanged if rival businesses within the market also experience a fall in demand due to the negative correlation to Ford
  - the business might look at other ways to encourage demand, such as making the car more attractive via car financing deals and leasing. This approach may be adopted even if demand is low as a means to access new markets. However, someone who is unemployed might not be able to afford a car, so this could be an expense while uncertainty remains regarding employment.
  - the implications to the business overall will depend on many factors, such as whether the business is able to adapt to changes in the unemployment rate. If so, any increase in demand could result in a fall in revenue across all areas of the UK business. However, sales in other areas could be able to compensate for any such fall.

See **Activity 7 Q3** answer for guidance on allocating marks

Total of **9 marks** available

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## Section 5: Price elasticity and income elasticity of demand

### Activity 9 (Price Elasticity of Demand)

1. a) The MOT car test's demand is **price inelastic**, as this is a requirement by law for a change in MOT test prices is likely to result in a smaller percentage change in requirement. It is a necessity for car owners.
- b) The 42" Curved Smart HD television's demand is **price elastic**, as this product is likely to result in a greater percentage change in demand, as the product is not a necessity.
- c) A pint of milk's demand is **price inelastic**, as it is a necessity product that is essential for most households. A change in price will result in a smaller percentage change in demand.
- d) Coca-Cola's price elasticity of demand could be considered to be **price inelastic** due to its strong brand image some will have a high level of brand loyalty to the product and if the price increases. A change in price will result in a smaller percentage change in demand.

1 mark *stating whether the product is price elastic or price inelastic*  
Up to 2 marks *full explanation for why the product is price elastic or price inelastic*

Total of **12 marks** available (3 marks available on each)

2. a)  $138 - 120 = 18$

$$\frac{18 \times 100}{120} = 15\%$$

Price increased by 15%.

$$126 - 140 = -14$$

$$\frac{-14 \times 100}{140} = -10\%$$

Demand fell by 10%.

$$\frac{-10}{15} = -0.67 \text{ PED}$$

Up to 2 marks *correct formula and answer for percentage change in demand*  
Up to 2 marks *correct formula and answer for percentage change in price*  
Up to 2 marks *correct formula and answer for PED*

Total of **6 marks** available

- b) The demand for the route from Luton to London is price inelastic as the coefficient is less than 1, indicating that demand is not particularly responsive to a change in price. An increase in the selling price leads to a fall in demand. At the lower price revenue would be £16,800 (140 passengers × £120). At the higher price revenue increases to £17,388 (126 × £138). The business would be advised to increase the price to increase revenue.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

- c) An increase in price should lead to a fall in demand, in theory, and this should lead to a fall in revenue. However, the business may have expected lower revenue due to the price increase; however, the actual numbers to lead to this.

1–2 marks *limited understanding demonstrated*  
3–4 marks *full understanding demonstrated*

Total of **4 marks** available

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d) Possible answers:

- **Differentiation** – the marketing mix implemented by the business could be unique. This would allow it to be more price inelastic, as loyal customers' demand is unresponsive to price changes. This could be achieved by a high level of customer service, e.g. extras for free during the flight, etc.
- **Substitutes** – the availability of other airlines providing the London to Verona route could increase the elasticity of demand. If consumers perceive these as legitimate alternatives, demand will be more price elastic. The business does not have direct influence over these alternatives. However, by marketing its own service over these could allow it to stand out and be a preferred choice.
- **Customer knowledge** – the more aware the market is of Fly Away the greater the demand to it. An effective promotional campaign will ensure brand awareness, also by targeting existing consumers that this is the better service than others available in the market.

The ability to influence the price elasticity of demand could depend on the number of competitors in the market, along with the extent to which the brand is differentiated. No or few alternatives are available to most consumers remaining with Fly Away, if the London to Verona route, is offered by Fly Away even if ticket prices increase. The extent to which the Fly Away brand is developed in the market, could allow it to stand out from others and still be considered as the best choice.

0–3 marks      limited response with little focus on the demands of the question  
4–7 marks      reasonable response that focuses on some of the demands of the question  
8–10 marks    good response overall that focuses on many of the demands of the question

Total of **10 marks** available

3. a) If price is increased by 10%:

- demand will decrease by  $0.8 \times 10\%$  i.e. **8%**
- demand will decrease by 4 ( $50 \times 8\%$ ) to **46** ( $50 - 4$ ) **cupcakes**
- revenue at the lower selling price is **£75.00** ( $£1.50 \times 50$ )
- revenue at the higher selling price will be **£75.90** ( $£1.65 \times 46$ )
- revenue is **£0.90 more** ( $£75.90 - £75.00$ ) at the higher price

The increase in selling price to £1.65 will result in the revenue increasing by £0.90

Total of **6 marks** available

b) The cupcakes' price elasticity of demand is less than 1, therefore the demand is inelastic. Demand is not particularly responsive to a change in price. Although demand will decrease, this is still a smaller percentage decrease than the percentage increase in price. Therefore, by increasing the selling price of cupcakes, as this will result in revenue increasing by £0.90.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

c) Possible answers:

- Price elasticity of demand allows a business to understand the impact on demand if price is changed. This allows it to decide on the best pricing strategy to implement. If demand is price elastic, price will be decreased. If the product is price elastic the business is more likely to reduce price. If it is price inelastic, price will be increased.
- Price elasticity of demand will also influence the marketing strategy used. If demand is price elastic the business will use the marketing mix to develop new products. If demand becomes more price inelastic and demand less responsive to price changes, the business will focus on maintaining its current market position.

0–1 mark      identifies the benefit;  
2 marks      identifies the benefit with a limited explanation; or  
3 marks      identifies the benefit and provides a full explanation.

Total of **3 marks** available

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### Activity 10 (Income Elasticity of Demand)

1. a)  $24,200 - 22,000 = 2,200$

$$\frac{2,200 \times 100}{22,000} = 1.0\%$$

Incomes increased by 10%.

$$600 - 800 = -200$$

$$\frac{-200 \times 100}{800} = -25\%$$

Demand fell by 25%.

$$\frac{-25}{10} = -2.5 \text{ YED}$$

The training shoes' income elasticity of demand is **-2.5**.

Up to 2 marks correct formula and answer for percentage change in demand

Up to 2 marks correct formula and answer for percentage change in income

Up to 2 marks correct formula and answer for YED

Total of **6 marks** available

- b) The training shoes are an inferior good as it has a negative income elasticity of demand.

1 mark stating the product is an inferior good

1 mark explanation of why it is an inferior good

Total of **2 marks** available

- c) Possible answers:

- The income elasticity of demand coefficient is based on past data and may change. A forecast in income levels within the economy could result in the business increasing production levels to meet the expected increase in the product's demand, as it is a normal good. However, in the future it might become an inferior good, then the coefficient being applied, as staffing numbers and productions should have been reduced.
- The income elasticity coefficient could result in the business focusing more on marketing and external factors, which could influence success. This is one factor it could consider but it should not ignore other valid information sources, such as economic analysis.

See Activity 9 Q3 c) answer for guidance on allocating marks

Total of **3 marks** available

- d) Possible answers:

- As an inferior good customers will switch to alternative training shoes as their income rises, which would result in falling demand for this product and lower revenue, as consumers are switching to other training shoes.
- As income levels decrease demand for the product will increase resulting in higher revenue.
- The business may choose to develop a broader product range, so risk is reduced for the current product.
- The business may choose to change the marketing mix of the product, so that it appeals to a wider image, resulting in consumers choosing to continue purchasing the product.

0–3 marks limited response with little focus on the demands of the question

4–6 marks reasonable response that focuses on some of the demands of the question

7–9 marks good response overall that focuses on many of the demands of the question

Total of **9 marks** available

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## Section 6: Operational data

### Activity 11

1. Capacity utilisation  $\frac{20 \times 100}{35} = 57.1\%$  during low season

See **Activity 4 Q1** answer for guidance on allocating marks

Total of **3 marks** available

2. Capacity utilisation  $\frac{32 \times 100}{35} = 91.4\%$  during high season

See **Activity 4 Q1** answer for guidance on allocating marks

Total of **3 marks** available

3. Low season  $\frac{£400}{20} = \text{£20.00}$  unit cost (20 customer occupancy level)

High season  $\frac{£460}{32} = \text{£14.38}$  unit cost (32 customer occupancy level)

$£14.38 - £20.00 = \text{£5.62}$  lower unit cost during high season

1 mark each correct unit cost formula for each year

1 mark each correct unit cost data for each year

1 mark each correct unit cost answer for each year

1 mark correct formula/data for calculating the difference

1 mark correct difference answer

Total of **8 marks** available

4. Possible answer:

The main problem faced by the business is the fixed costs associated with the permanent staff. As their skills are probably fully utilised during high season, this is unlikely in low season. A permanent employee has insufficient work to keep them busy with the danger that they become idle and not to their full potential. This could damage the reputation of Brenda's B&B.

Brenda should look to hire staff on a fixed-term contract basis during the high season to justify an additional member of staff on a longer term basis. During low season staff can be hired as and when needed, thus being paid only when their services are required. This allows the employee may not have any loyalty to the business and may leave as soon as a better opportunity arises, allowing an appropriate response to changes in demand during low season. Furthermore, it allows the business to maintain its full potential immediately, as they need time to get used to the way in which the business operates.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

### Activity 12

1. Unit cost  $\frac{£575}{25} = \text{£23}$  at 25 customers

Capacity utilisation  $\frac{25 \times 100}{49} = 51.0\%$  at 25 customers

See **Activity 3 Q4** answer for guidance on allocating marks

Total of **6 marks** available

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2. Unit cost  $\frac{£800}{40} = \text{£20}$  at 40 customers  
Capacity utilisation  $\frac{40 \times 100}{49} = \text{81.6\%}$  at 40 customers

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **6 marks** available

3. Possible answers:
- A higher capacity utilisation results in the business having a lower unit cost. If 2 nightclub service the unit costs will be £3 higher (£23) than if 40 customers use a higher profit margin with a higher level of capacity utilisation.
  - A higher capacity utilisation may not be advantageous if it does not provide additional breaks or coaches to be serviced. The well-being of customers could be threatened by an accident, which damages the reputation of the business beyond repair.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

4. Possible answers:
- The coach firm could use a promotional offer to encourage increased usage of the service. This may be in the form of advertising, offering a discount for new customers or running special offers. This may encourage more customers, as greater awareness could be created and the firm can offer better value. The drawback is that the number of customers gained may not be sufficient to offset the costs associated with the promotional strategies.
  - The coach firm could reduce the price of the service which could encourage more customers. However, the profit margin being lowered to such an extent that it does not make the service worthwhile.
  - The coach firm could provide a drinks service and play dance music during the journey. This may encourage customers to feel that the nightclub experience commences as soon as they get on the coach, leading to increased usage or new customers, but this could add to the costs of the service required to provide this new element of the product. The profit margin on the service may not be sufficient to cover the cost of an additional employee.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

5. Possible answers include:
- The service could be subcontracted to another coach firm with Universal Travel. This would allow it to focus on its existing services and respond to the demand for a new one. However, Universal Travel's reputation for providing a lower standard of service, which could lead to a loss of customers.
  - Employees could be asked to work longer hours, but overtime payments could reduce the profit margin.
  - The firm could hire a coach from another business and use one of its existing employees. The additional costs associated with this may make the provision financially not worthwhile.
  - If the business has some staff hired on a flexible basis, their working hours could be increased. If the business does not have employees employed on such a basis this option is not available.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

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## Section 7: Inventory control

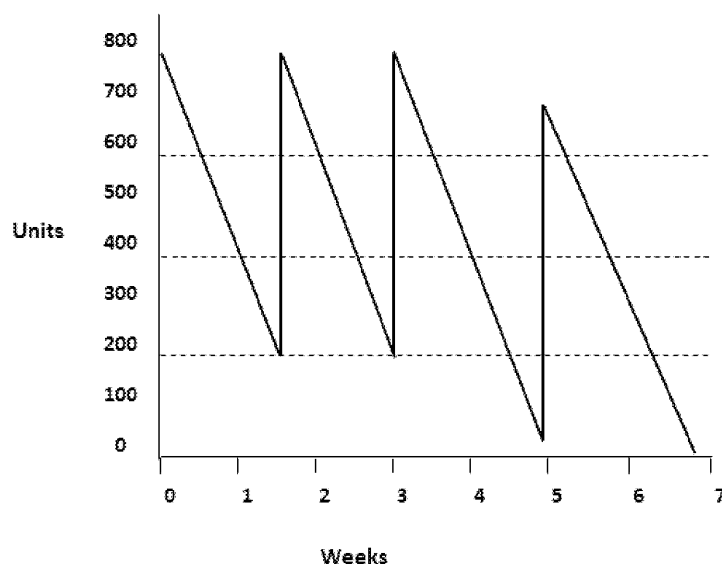
### Activity 13

1. 200 units – 1 mark available
2. 600 units – 1 mark available
3. 400 units – 1 mark available
4. 3.5 days (the order is placed in week 1 and is received midway between week 1 and

1 mark for the correct answer and 1 mark for reasoning/calculation

Total of **2 marks** available

5. Discuss whether the inventory control of the business has been effective.



Possible points of discussion:

- Weeks 0 to 3 the inventory control appears to have been effective, as the business has not fallen below the minimum stock level during this period to meet its customers' orders. It has not fallen below the minimum stock level during this period.
- Partway through week 4 leading to 5 the business might have been concerned to meet its customers' orders. This might be due to an unexpected rise in demand.
- By week 7 the business would have been extremely concerned, as it experienced no stock available to meet its customers' orders. This could have harmed its reputation, deemed them unreliable and sought a new supplier. This could have resulted in a loss of demand, revenue and subsequently profits.
- The fact that the business started to use its buffer stock partway through week 4, making the next order might not have taken this into account, as the business appears they ordered the usual quantity of stock rather than a higher amount of stock being used, as when the stock arrived it was not restored to its 800 units but to approximately 700 units. The business appears to have ordered 100 units fewer.
- Overall, the business should consider its inventory control effective for most of the time, but if there are surges in unexpected demand it is not as effective as it should be. Stock should be maintained at its maximum level and not below this when received.

0–4 marks	limited response with little focus on the demands of the question
5–8 marks	reasonable response that focuses on some of the demands of the question
9–12 marks	good response overall that focuses on many of the demands of the question
13–16 marks	excellent response that is fully focused on the key demands of the question

Total of **16 marks** available

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## Activity 14

1. 1,200 units – 1 mark available
2. 800 units – 1 mark available
3. 400 units – 1 mark available
4. 1 week. For example, stock was reordered at the start of week 1 and arrived at the start of week 2.

1 mark for the correct answer and 1 mark for reasoning/calculation

Total of **2 marks** available

5. Points for discussion include:
  - Between weeks 0 to 2 the lead time for an order was one week. The business reordered at the start of week 1 and the stock arrived at the start of week 2 the stock level had reached the minimum level of 1,200 units once the delivery was taken into account.
  - The reorder in week 3, which arrived at the start of week 4, appears to have been below normal. When it arrived the stock level was at the minimum level of 400 units, 1,800 units.
  - In week 5 another order was placed and once again this appeared to be for 140 units, which increased from 600 units to 2,000 units.
  - Part of the difficulties experienced by the business is that it seems to be ordering too much. This might be because it expected a higher level of demand, but this appears not to be the case. Subsequent orders should have been for a much smaller amount to restore it to the reorder level, which is 1,200 units. By week 6 it is 800 units above this.
  - The business has had to pay for this stock, but would not have generated any revenue from it. This would have increased its costs, but not resulted in any increase in revenue. It could have decreased assuming all other factors remain the same.
  - As the business has money tied up in stock it is not available for use elsewhere. This is detrimental if opportunities that could have increased profits could not be taken.
  - The business is in the fashion industry; therefore, some items of stock might be out of date. They are no longer of use to the business, which means the money could be sold onto another business. If so, this is likely to be at a lower price to the original cost.
  - Holding excessive amounts of stock could have increased the storage costs of the business. This increases costs, which subsequently reduces profits.
  - It is difficult to comment on whether the inventory stock control is the only reason for the business at present. However, there it has a part to play, as in recent weeks the stock level has been above the maximum level the business wanted to hold.

See **Activity 13 Q5** answer for guidance on allocating marks

Total of **16 marks** available

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## Section 8: Budgets

### Activity 15

1. February budget and actual performance statement

	Budget	Actual	Variance
Income	<b>£3,780</b>	£3,600	£180 A
Expenditure	<b>£2,700</b>	£2,500	£200 F
<b>Profit</b>	<b>£1,080</b>	£1,100	<b>£20 F</b>

$$\text{Budgeted income} = \frac{£3,150 \times 20}{100} = £630 + £3,150 = \textbf{£3,780}$$

$$\text{Budgeted expenditure} = \frac{£2,250 \times 20}{100} = £450 + £2,250 = \textbf{£2,700}$$

$$\text{Budgeted profit } £3,780 - £2,700 = \textbf{£1,080 A}$$

$$\text{Income variance } £3,780 - £3,600 = \textbf{£180 A}$$

$$\text{Expenditure variance } £2,700 - £2,500 = \textbf{£200 F}$$

$$\text{Profit variance } £1,080 - £1,100 = \textbf{£20 F}$$

2 marks each      correct formula and answers

1 mark each      correctly stating whether the variance is adverse or favourable

Total of **15 marks** available

2. The **benefits** of an international chain of florists, such as Interflora Business Unit, of
- as a large organisation it will have a broad range of costs that run into millions management team to have better control of the spending, as the budget can be expenditure, thus allowing overspends and underspends to be identified and necessary;
  - the above allows the management team and/or budget holders to know who makes it easier to identify who is accountable for the performance of certain
  - in some organisations managers can feel demotivated if the control of the budget Interflora Business Unit managers could feel motivated if they have budgetary for how it is used. This responsibility indicates they are trusted, thereby making important part of the organisation, which should make them feel good about the
  - it can provide a means to measure the success of the business; and
  - it allows the florist to monitor targets and highlight where remedial action might

However, the budgets may be a **drawback** to the group, because:

- if the budget holders are not involved in the budget setting process, they may thus do not commit to its achievement. This is a possibility for an organisation where decisions may be made at head office level;
- in a large organisation it may be difficult to promptly amend the budgets, if may due to the number of people that may need to be involved in the process. This resources not being used to the optimum level for the needs of the business, the being maximised;
- Interflora Business Unit is a large organisation and will have a wealth of data and setting budgets. This could result in the process being overlong and market opportunities appropriate resources are not in place at such times.

In conclusion, a budget should be of benefit to a large organisation such as Interflora mechanism to review the needs of each business area and allocate sufficient resources successfully towards achieving their objectives. However, the extent to which this is of the group to amend the budgets in light of changing market conditions. Taking too accordance with these changes may result in some business areas not performing as necessary resources.

See **Activity 13 Q5** answer for guidance on allocating marks

Total of **16 marks** available

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## Activity 16

1.

	Budget	Actual
<b>Income</b>		
Bakery and coffee shop sales	£220,500	£234,480
Catering service sales	£24,500	£25,020
<b>Total income</b>	<b>£245,000</b>	<b>£259,500</b>
<b>Expenditure</b>		
Materials	£73,500	£85,050
Wages	£130,400	£136,920
Rent	£12,000	£12,000
Marketing	£13,500	£17,600
<b>Total expenditure</b>	<b>£229,400</b>	<b>£251,570</b>
<b>Profit/loss</b>	<b>£15,600</b>	<b>£7,930</b>

2 marks each correct formula and answer

1 mark each stating whether the variance is adverse or favourable correctly

Total of **15 marks** available

2. The owners have been concerned that the stock costs were too high, but without a budget they do not know exactly how much they expected to spend. By producing a budget actual expenditure can be compared thus allowing the business to monitor its spending. It will highlight if stock costs are higher than expected for management to determine whether it is justifiable or not, for example, stock costs are higher than expected if demand is higher thus warranting the use of more materials than planned.

See **Activity 9 Q3 c)** answer for guidance on allocating marks

Total of **3 marks** available

3. Possible answers:

- The owners may be concerned as spending on materials is higher than budgeted, as sales being higher than expected, thus requiring more expenditure on stock than planned.
- The owners may be equally concerned that wages are higher than targeted, but this could be due to a higher level of sales, as employees could have been required to work longer hours.
- The owners may also have been concerned that marketing expenditure was higher than budgeted due to the expansion of the business and more promotions being required to attract new customers or service for special occasions.
- Overall, the owners should be concerned to some extent, as although sales were higher than expected, profit was £7,670 lower than expected, suggesting that the additional costs can be justified by the higher demand. The profit target would have been expected to be bettered in these circumstances as sales are higher than they should be. The business should look to investigate the materials costs to see whether this is solely down to higher levels of demand or possibly due to increased waste.

See **Activity 13 Q5** answer for guidance on allocating marks

Total of **16 marks** available

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## Section 9: Cash flow forecasting and analysis

### Activity 17

- 1 mark each  
 June total cash inflows **£15,000**  
 June total cash outflows **£12,550**  
 May closing balance **£400**  
 June opening balance **£400**  
 June net cash flow **£2,450**  
 June closing balance **£2,850**

Total of **6 marks** available

- Possible answers:

The cash position of the business is forecast to be positive for both May and June. This means the business has enough cash to pay the anticipated bills.

The cash balance is expected to increase by over £2,000. If it is not needed for the future, it may be wise for the owner to transfer some of it to an interest bearing account, so it can be used. In a current account the rate of interest will be low, but a higher rate may be available if a surplus to requirements is moved to a preferable account.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

### Activity 18

- 

	Quarter 1	
<b>Cash inflows</b>		
Repair sales	£1,300	
Electrical sales	£6,500	
<b>Total cash inflows</b>	<b>£7,800</b>	
<b>Cash outflows</b>		
Stock	£5,175	
Labour	£2,440	
Rent	£1,200	
Utilities	£525	
Telephone	£210	
<b>Total cash outflows</b>	<b>£9,550</b>	
Opening balance	£1,125	
Net cash flow	<b>-£1,750</b>	
Closing balance	<b>-£625</b>	

Up to 3 marks      data correctly allocated in cash flow forecast  
 1 mark each      correct calculations/answers (in bold) up to **9 marks** maximum

Total of **12 marks** available

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3. Possible answers:

- A negative cash flow is predicted for quarter 1 of -£625, but this is expected to be short term. Any cash flow problems are expected to be short term.
- A short-term cash flow problem may be better resolved by organising an overdraft with suppliers for an extended period to pay.
- Introducing an owner to the business could result in Paul Bennett losing some control, but could allow some of the workload to be split or new ideas to be introduced.
- If a new owner is being introduced to resolve cash flow problems this would address the problem does not require a long-term solution. If a new owner is being introduced assisting with the management of the business or helping it to expand, then the problem is resolved.
- The final decision will depend on Paul Bennett's motives.

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

4. Possible answers:

- alert the business to future cash flow problems
- evidence to support loan/overdraft applications
- assists the business to ensure sufficient cash is available to meet payments as they arise
- assist the business to plan for positive cash balances that could be used to better manage interest bearing savings accounts
- time-consuming
- inaccurate due to the experience of an owner, especially in new business start-up

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

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## Section 10: Break-even analysis

### Practice Activity 19

1. £1000 (revenue per customer) – £500 (total variable costs per customer) = £500 contribution per customer

$$\frac{\text{£1,000 (fixed costs)}}{\text{£500}} = \mathbf{2 \text{ customers}} \text{ per week to break even}$$

1 mark correct contribution per customer formula and data

1 mark correct answer for contribution per customer

1 mark correct break-even formula and data

1 mark correct break-even answer

Total of **4 marks** available

2. 4 actual customers per week – 2 customers per week to break even = 2 customers per week above break-even

1 mark correct formula and data

1 mark correct answer

Total of **2 marks** available

3. Possible answers:

- Trade cannot fall by more than two customers a week, otherwise the business would be in a loss. The margin of safety is two.
- The business requires two customers a week in order to break even, but is actually achieving four. This is an advantageous position, as it is operating above the break-even point.
- The contribution per customer is £500, therefore once the business breaks even it becomes profit. As there are two customers above the break-even level £1000 (£500 × Business Studies 2) is achieved each week. This could be retained in the business to fund the development of the business or reward the owners.

0–2 mark limited response with little focus on the question set

3–4 marks reasonable response with some focus on the question set

5–6 marks good response with clear focus on the question set

Total of **6 marks** available

4. Possible answers:

- The special order provides a positive contribution of £300 (£800 (selling price) – £500 (variable costs per customer)), thus it could be accepted at this stage but other factors should be considered.
- Does the business have spare capacity for this order? If the business does have spare capacity so that staff are kept busy and some contribution is being achieved to go towards the fixed costs, the business does not have spare capacity the order will have to be turned down, unless another business who will meet it to the expected standards. This would still allow the business to receive income from this order without having to incur the costs associated with it.
- Will the business incur additional fixed costs in organising this event? If so, will the contribution cover the loss? In this circumstance it would be best it was not accepted.
- How will this affect existing orders? If the business is not able to service existing orders, accepting the special order, it may be best it is turned down, so that a loyal customer base is maintained and standards falling.
- How will existing customers respond, if they become aware of this order? Existing customers may feel that the special order is unfair and seeks an alternative firm to arrange future events. In this circumstance, turning down the order.
- Will the special order lead to more orders? If this could provide further financial benefit, the interests of the business to accept it.

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

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# Activity 20

1.

Output	Revenue	Total variable costs	Fixed costs	Total
0	£0	£0	£3,000	£3,000
500	£1,000	£250	£3,000	£3,250
1000	£2,000	£500	£3,000	£3,500
1500	£3,000	£750	£3,000	£3,750
2000	£4,000	£1,000	£3,000	£4,000
2500	£5,000	£1,250	£3,000	£4,250
3000	£6,000	£1,500	£3,000	£4,500

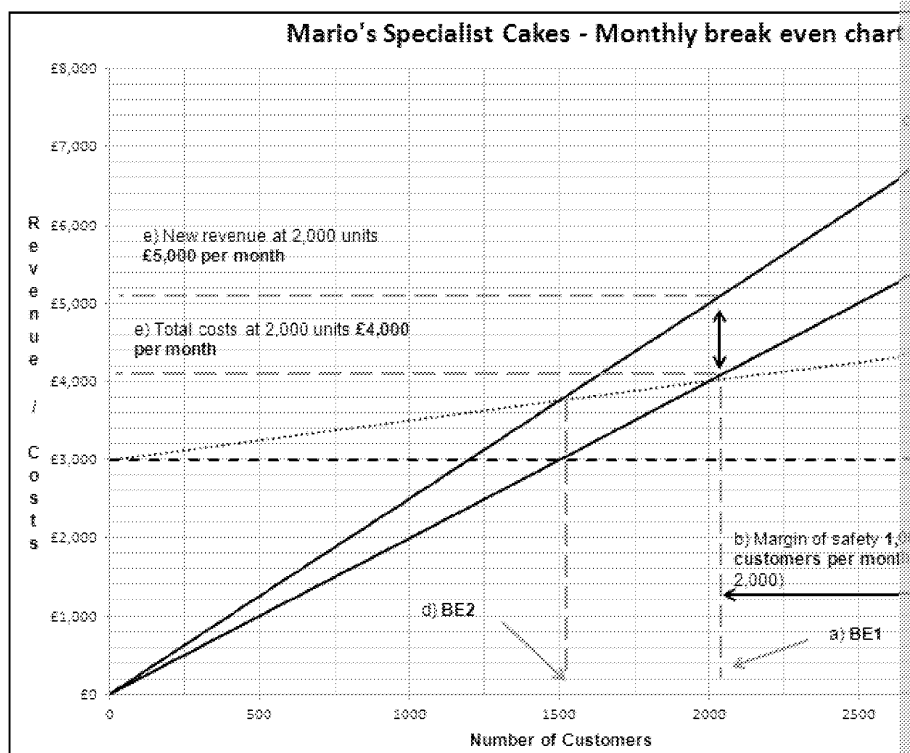
1 mark for each correct answer up to a maximum of 5 marks

2. 2,000 cupcakes a month are required to break even – 1 mark for correct answer

3. The total costs include fixed costs (1 mark) which have to be paid regardless of whether you sell anything or not (1 mark).

Total of 2 marks available

4.



labelling break-even at 2,000 customers (total of 1 mark available)

b) 1 mark labelling the margin of safety between 2,000 and 3,000 customers  
1 mark identifying the margin of safety as 1,000 customers

Total of 2 marks available

c) 1 mark new revenue line has a minor error or  
2 marks new revenue line accurate  
1 mark labelling the new revenue line REV2

Total of 3 marks available

d) 1 mark new break-even labelled at 1,500 (total of 1 mark available)

e) 1 mark correct answer, 1,500 cupcakes per month (total of 1 mark available)

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- f) Revenue at 2,000 customers per month is £5,000 at the new price level, while it is expected to make a £1,000 profit per month (£5,000 – £4,000).

1 mark each      correct revenue and total costs data (maximum 2 marks)

1 mark      correct formula

1 mark      correct profit answer: £1,000 p/month

Total of **4 marks** available

- g) Possible answers:

- The business can use break-even as a 'what if' tool to determine the impact of an increase in price. If the price is to increase to £2.50 per cupcake.
- The business would identify that 500 fewer customers per month are required if the price per cupcake increases.
- Although 700 customers could be lost due to the price increase the business would still make a profit with 2,300 customers per month than 3,000.

Original price

3,000 (actual customers) – 2,000 (break-even output) = 1,000 margin of safety

1,000 × £1.50 (contribution per customer) = £1,500 profit

New price

2,300 (actual customers) – 1,500 (break-even output) = 800 margin of safety

800 × £2.00 (contribution per customer) = £1,600 profit

- There is an assumption that all other factors will remain the same. However, if the price increases, there may be fewer items each month, possibly leading to fewer bulk-buying discounts and thus increasing the break-even point, thus resulting in break-even at a higher level.
- Increasing the price results in the loss of customers with little gain in profit.
- Break-even analysis will only be useful to the business, if the data on which it is based is reliable.

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

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## Section 11: Profitability analysis

### Activity 21

1.

Financial item	Cash	Profit
Customer cash sales	✓	✓
Suppliers' trade credit – invoice not paid		✓
Suppliers' trade credit – invoice paid	✓	✓
Capital raised from share issue	✓	
Rent payment to landlord	✓	✓
Sale of a fixed asset	✓	✓
Bank loan	✓	

Allocate 1 mark for each correct answer up to a maximum of **11 marks**

#### Explanation

- **Customer cash sales** – this provides an immediate injection of cash into the business activities of the business, thus increasing revenue, which should increase the profit as the revenue is higher than the costs associated with the sale.
- **Suppliers' trade credit (invoice not paid)** – this relates to the trading activities of the business and will impact on the profits earned. It will not have an effect on the cash position of the business as the invoice has not been paid.
- **Suppliers' trade credit (invoice paid)** – this relates to the trading activities of the business and will impact on the profits earned. It will have an effect on the cash position of the business as the invoice has been paid.
- **Capital raised from a share issue** – this does not relate to the trading activities of the business and will not impact on the profits earned. This will improve the cash balance of the business as cash is brought into the business.
- **Rent payment to landlord** – this will reduce the cash in the business, as a bill is paid, but it is related to the trading activities of the business and will affect profits.
- **Sale of a fixed asset** – this will increase the cash inflow into the business, and is considered to be an extraordinary item of income; achieved outside the normal trading activities of the business.
- **Bank loan** – this is an inflow of cash into the business, but will not have an effect on the profits earned as it is not acquired as part of its trading activities.

2.  $\frac{1,480,054}{£3,017,141} \times 100 = \mathbf{49.1\% \text{ GPM}}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

3.  $\frac{£176,694}{£3,244,431} \times 100 = \mathbf{5.4\% \text{ OPM}}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

4.  $\frac{£99,711}{£3,017,141} \times 100 = \mathbf{3.3\% \text{ PYM}}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

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5. Possible answers:

- Based on the financial data alone the board of directors would not appear to be concerned about the financial performance of the business, as all profit measures show an improvement.
- The gross profit margin suggests the business was more efficient at managing its costs. For every £1 of revenue there was an improvement of approximately £0.02 (51.4% – 49.1%) compared to the previous year.
- The operating profit margin also indicates the business was more efficient, but this improvement was smaller. For every £1 of revenue there was an improvement of nearly £0.01 (5.4% – 4.7%) compared to the previous year.
- The profit for the year margin also suggests the business was more efficient and able to pay lower charges on borrowing and/or at generating profits from non-trading activities, as nearly £0.05 of profit for the year 2014 was earned in comparison to approximately £0.04 in 2013.
- Taking into consideration the difficult trading conditions with consumers more concerned about essential items, it would appear the performance of the business has been most improved at a time when consumers are being more cautious regarding their spending.
- However, the business may consider the improved performance not satisfactory as it is still below target.

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

6. Possible answers:

- Although Precision is a profitable business it has embarked on an expansion strategy which could have impacted on its cash position. Setting up new retail branches will result in the cash balance being reduced, as some of the costs associated with this growth could be incurred before the new branches are fully operational.
- As the business sets up its operations in the Asian region it will incur cash outflows initially, as it will take time before each branch is ready to start trading.
- The business will need to hold a certain amount of stock in its retail branches, which will result in cash being tied up in these items.

See **Activity 19 Q3** answer for guidance on allocating marks

Total of **6 marks** available

**Activity 22**

1.  $\frac{£180.4m}{£619.4m} \times 100 = 29.1\% \text{ GPM}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

2.  $\frac{£76.0m}{£619.4m} \times 100 = 12.3\% \text{ NPM}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

3.  $\frac{£54.5m}{£619.4m} \times 100 = 8.8\% \text{ PYM}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **3 marks** available

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4. Possible answers:

- The performance of Cineworld between 2013 and 2014 has been very successful against all indicators.
- The gross profit margin has increased by 1.3% (29.1% – 27.8%) indicating that it is managing its costs of sales, as a greater proportion of gross profit is being achieved.
- The operating profit margin has increased by 3.1% (12.3% – 9.2%); for each £1 of sales, approximately £0.03 more operating profit being generated, thus suggesting that it is managing its overheads.
- The profit for the year margin has increased by 3.6% (8.8% – 5.2%), which means that the profit for the year, after all cost deductions from revenue and profit from non-trading activities, has increased by nearly £0.04. This indicates it may be less reliant on borrowing, thus reducing interest charges and/or it is generating more profits from non-trading activities.
- Overall the business seems to be in a strong position, as revenues have increased despite a fall in cinema attendance between 2013 and 2014. This could be partly due to the 'Superscreens' it provides that differentiate it from competitors, thus allowing it to attract customers whose services may not be judged as good by consumers.
- Lastly, the business has been able to embark on a successful programme of expansion to become the market leader, indicating a successful trading period.

See **Activity 10 Q1 d)** answer for guidance on allocating marks

Total of **9 marks** available

5. Possible answers:

- **Increase the number of ticket sales** – this will spread the fixed costs of the business over a larger number of sales, reducing the unit costs and allowing a higher profit margin. The strategies used to increase sales could increase costs, such as offering discounts or an advertising campaign, but the overall effect profit margins will fall rather than increase.
- **Increase prices** – the business has been successful at charging higher prices for premium viewings, for example, possibly due to it being perceived as unique and of sufficient quality. Increasing the price on 2D films may be unsuccessful if consumers consider this not an alternative cinema in the locality or the cinema experience is considered inferior. Consumers could pay the higher price.
- **Reduce costs** – the business will have little flexibility on the costs associated with its premises and staff, but it will maintain significant control over these. It may be able to negotiate improved prices for source new ones for the food and drink items they sell. The lower costs could be offset if quality standards are compromised or suppliers cannot be guaranteed to deliver on time, leading to a switch to an alternative cinema, resulting in profits falling.

See **Activity 19 Q3** answer for guidance on allocating marks

Total of **6 marks** available

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## Section 12: Human resources data

### Activity 23

1.  $2013 \frac{6,000}{30} = 200$  bicycles per employee

$2015 \frac{8,575}{35} = 245$  bicycles per employee

$245 - 200 = 45$  increase per employee

1 mark each	correct labour productivity formula for each year
1 mark each	correct labour productivity data for each year
1 mark each	correct labour productivity answer for each year
1 mark	correct formula/data for calculating the difference
1 mark	correct difference answer

Total of **8 marks** available

2. Possible answers:

- The labour productivity of the business has improved, as by 2015 each employee produced more bicycles than in 2013.
- The higher level of output will help to reduce the unit costs of the business, resulting in higher profits.
- The increased productivity will assist the business in meeting growing demand for bicycles, so it may need to employ more staff, thus helping to keep costs low but improve profits.
- The increased productivity indicates that staff morale at the business is good, as they are willing to put in increased effort to produce more.

See **Activity 19 Q3** answer for guidance on allocating marks

Total of **6 marks** available

3.  $2013 \frac{4 \times 100}{30} = 13.3\%$

$2015 \frac{1 \times 100}{35} = 2.9\%$

See **Activity 3 Q4** answer for guidance on allocating marks

Total of **6 marks** available

4. Possible answers:

- Staff are leaving the business on a less frequent basis, as there has been a decline in the labour turnover rate of 10.4% ( $13.3\% - 2.9\%$ ).
- A lower labour turnover rate reduces the recruitment and selection costs of the business, resulting in higher profits.
- A lower labour turnover rate adds to the positive reputation of the business, as it is seen as a good employer with motivated employees and may find it easier to attract new ones.

See **Activity 1 Q2** answer for guidance on allocating marks

Total of **6 marks** available

5.  $2013 \frac{30-4}{30} \times 100 = \frac{26}{30} \times 100 = 86.7\%$  labour retention

$2015 \frac{35-1}{35} \times 100 = \frac{34}{35} \times 100 = 97.1\%$  labour retention

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **6 marks** available

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6. Possible answers:

- Staff are leaving the business on a less frequent basis, as there is an increase in retention (97.1% – 86.7%).
- This indicates employees are content to remain with the business, as only one employee has left.
- A higher labour retention reduces the recruitment and selection costs of the business.
- A higher labour retention rate adds to the positive reputation of the business, making it an employer with motivated employees and may find it easier to attract new ones.

See Activity 1 Q2 answer for guidance on allocating marks

See **Activity 19 Q3** answer for guidance on allocating marks

Total of **6 marks** available

7. Possible answers:

- **Bonuses** – employees that are motivated by money (Taylor) may be encouraged to achieve the bonus available. This would have contributed to improved productivity and staff stay with the business. However, not all employees are motivated by money.
- **Team working** – organising employees to work in teams could be motivating as it fulfils Maslow's social needs. They feel like they belong and will give their best effort for the team down. The latter will encourage improved productivity, while the former will encourage staff to stay with the business if they feel they fit in.
- **Contributing ideas** – contributing ideas can enhance employee morale, as their ideas are recognised.
- **Training** – employees whether new or existing will feel valued, as the business invests in them so that not only do they fit in with the business and understand how it operates, but they can assist their advancement within it. This will assist staff motivation, encourage their efforts and stay with the business.

See **Activity 19 Q3** answer for guidance on allocating marks

Total of **6 marks** available

## Activity 24

1. Furniture Delight  $\frac{3 \times 100}{14} = \mathbf{21.4\%}$

Haynes Furniture Designs  $\frac{4 \times 100}{16} = \mathbf{25.0\%}$

See Activity 6 Q1 answer for guidance on allocating marks

Total of **6 marks** available

2. Furniture Delight  $\frac{476}{14} = \mathbf{34 \text{ items of furniture per employee}}$

Haynes Furniture Designs  $\frac{496}{16} = \mathbf{31 \text{ items of furniture per employee}}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **6 marks** available

3. Furniture Delight  $\frac{£202,100}{476} = \mathbf{£424.58 \text{ labour costs per unit}}$

Haynes Furniture Designs  $\frac{£277,330}{496} = \mathbf{£559.13 \text{ labour costs per unit}}$

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **6 marks** available

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4. Furniture Delight  $\frac{£202,100}{£750,000} \times 100 = 26.9\%$  employee costs as a percentage of revenue

Haynes Furniture Designs  $\frac{£277,330}{£694,400} \times 100 = 39.9\%$  employee costs as a percentage of revenue

See **Activity 6 Q1** answer for guidance on allocating marks

Total of **6 marks** available

5. Possible answers:

- Furniture Design would appear to have the most effective workforce, as they have 3 (34 – 31) items of furniture per employee and a lower labour turnover rate by (25% – 21.4%).
- If each business had similar fixed costs Furniture Design would have a lower unit cost as the fixed costs would be spread across more items of furniture, thus allowing a higher profit margin if the selling price were the same.
- Furniture Delight has a lower labour cost per unit than Haynes Furniture Design (£424.58).
- Furniture Delight's employee costs as a percentage of revenue are 13% lower than Haynes (39.9% – 26.9%), thus indicating that proportionally less of its revenue has to go on employee costs.
- Each human resources indicator suggests that Furniture Delight is more efficient than Haynes Furniture Design.
- However, the data does not provide information on the quality of the items produced or the number of days lost due to accidents, therefore without this information a definitive conclusion cannot be reached as to which business is deemed to have the most effective workforce.

See **Activity 10 Q1d** answer for guidance on allocating marks

Total of **9 marks** available

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# SECTION 15: SUGGESTED ANSWERS TO AS ASSES

## Paper 1: Business 1

### Marking criteria for Sections B and C

Use the following marking criteria to award marks. Please note guidance on awarding marks for some suggested answers.

#### 4 marks

Level	Typical candidate response
3	Good knowledge and understanding demonstrated and is applied in the context.
2	Reasonable knowledge and understanding demonstrated and some application in context.
1	Limited knowledge and understanding demonstrated and lacking application in context.

#### 5 marks

Level	Typical candidate response
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context.
2	Reasonable response that focuses on some of the demands of the question with analysis and is applied in context.
1	Limited response with little focus on the demands of the question with limited analysis and descriptive application in context.

#### 6 marks

Level	Typical candidate response
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context.
2	Reasonable response that focuses on some of the demands of the question with analysis and is applied in context.
1	Limited response with little focus on the demands of the question with limited analysis and descriptive application in context.

#### 16 marks

Level	Typical candidate response
4	Excellent key response that focuses on the demands of the question with well-developed analysis throughout. The response is consistently in context. The judgement is consistent with the analysis with a balanced response, which focuses on the question throughout.
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context. Judgement linked to analysis, which is consistent with the analysis.
2	Reasonable response that focuses on some of the demands of the question with analysis and is applied in context. Judgement linked to analysis but lacks balance.
1	Limited response with little focus on the demands of the question with limited analysis and descriptive application in context. Judgement made but limited analysis.

### Section A

1. B
2. D
3. D
4. C
5. B
6. A
7. C
8. D
9. A
10. B

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**Section B**

11. £23.50 (selling price per unit) – £11.50 (total variable costs per unit) = £12 contribution

$$\frac{£42,000.00 \text{ (fixed costs)}}{£12.00} = 3,500 \text{ units per quarter to break even (1,167 units on average)}$$

- 1–2 marks      correct contribution per customer formula and data  
 1 mark          correct answer for contribution per customer  
 1 mark          correct break-even formula and data  
 1 mark          correct break-even answer

*Total of 5 marks available*

12. Possible answers include:

- informs a business of the minimum level of sales to ensure all costs are covered
- allows the business to know whether its current level of sales is sufficient to cover its costs and implement remedial action to turn the situation around
- can support a financing application
- can be used as a 'what-if' tool, so the business knows the implications on the break-even point if variable costs or fixed costs change

*4 marks available*

13. Possible answers regarding why Drovers Engineering Ltd might be experiencing stock issues:

- up until week 3 there were no issues regarding inventory control, as inventory was delivered on time and arrived about 3½ days later on each occasion
- the business experienced a stock out in week 5 indicating that either the business or the supplier(s) had not delivered on time. If it is the latter, the business would still have to wait for inventory arriving a week later rather than the usual 3½ days.
- the business has experienced another stock out midway through week 6 and 7, which appears to have taken account of the buffer stock being used to meet orders when stock was low.
- the business has not ordered sufficient stock since this occurrence to restore inventory levels to 160 units. It appears to have ordered in week 5 100 units rather than the required 160 units.

*6 marks available*

14. Possible answers:

- **change supplier** – the business has had problems with inventory control over a period of time and therefore, does this warrant changing supplier? If so, it is presumed the supplier(s) the business has lost trust in them supplying the business in accordance with the terms of the contract. However, changing supplier is not automatic, as time will be required to find new ones and put measures in place to ensure they can supply the inventory as expected. The issues that occurred with the existing supplier(s) can be resolved by working more closely with them or to finding new ones, as this should require the least amount of time and effort.
- **review and amend the existing inventory control system where possible** – although the business has been down by suppliers delivering late and in the correct quantity, it does not appear it has had many occurrences, as the orders placed during weeks 5 and 6 did not restore the business to full production. This indicates that staff in charge of this area did not appreciate the need to order a greater quantity in certain circumstances 160 units, rather than 120 units – as there had been a stock out. This should allow the business to respond accordingly if similar inventory control issues occur. However, there is a cost to this, but this is minor in comparison to losing key customers.
- **introduce an electronic system for managing inventory** – assuming staff scan goods received from suppliers and also scan goods sent to customers, this should allow the business to have a record of each type of inventory it holds at any moment in time. If this is linked to a system, it can remove the need for a person to manually place an order when inventory reaches a certain level. An automatic order will be triggered. This is more likely to be completed in a timely manner than the latter might require inventory levels to be physically checked before an order is placed. However, the initial cost and time associated with introducing an electronic system may deter some firms, but, if completed successfully, it could reduce the need for a just-in-time system could be used. Nevertheless, this will depend on having reliable suppliers.

*5 marks available*

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15. a) Popcorn  
 $(£30.0m \times 0.65) + (£12.0m \times 0.35) - 2 \text{ marks}$

$£19.5m + £4.2m = £23.7m \text{ expected value} - 1 \text{ mark}$

$£23.7m - £5.0m = £18.7m \text{ net gain} - 1 \text{ mark}$

Launching a premium popcorn range has a net value of £18.7m.

Vegetable crisps:

$(£17.0m \times 0.7) + (£7.0m \times 0.3) - 2 \text{ marks}$

$£11.9m + £2.1m = £14.0m \text{ expected value} - 1 \text{ mark}$

$£14.0m - £2.0m = £12.0m \text{ net gain} - 1 \text{ mark}$

Launching a premium vegetable crisps range has a net value of £18.7m.

Based on the net gains, only Moretti Ltd should launch the premium popcorn range.

- b) Possible answers:

## Reasons for launching a new product

- decline in market sales for crisps by 2%, including premium crisps
- changing consumer tastes
- the business has an innovative culture where it is always seeking new opportunities
- growing new markets – popcorn (40%) and vegetable crisps
- strong 'Rocco' brand image can help it to differentiate itself against existing markets
- Rocco is considered a luxury brand, as it has an income elasticity of demand greater than 1, so using the brand to launch new premium products would be advantageous as they would be luxurious.

## Reasons against launching a new product

- continued business success even with the declining UK crisp market, thus the business is not directly affected by this trend
- competitors are already operating in both the popcorn and vegetable crisp markets, so it might find it difficult to attract consumers from such rivals, if they have established brands
- the business has not considered launching into new markets with existing products, so it is more than launching new ones. These should be investigated before making a final decision
- the chance of success with premium popcorn is 65% while with vegetable crisps it is 70%, so for both businesses this is still not a high enough chance of success.
- vegetable crisps has a higher chance of success than popcorn, but due to the declining market it is chosen. This possibly should be given greater consideration.

## Depends on

- the innovative business culture indicates Moretti Ltd will look to do something new
- the extent to which the business should launch a new product will depend on whether the business's core objective is to enter new markets or launch new products

**16 marks available**

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16. a) Possible answers:

- 2015 profit margin for the year:  $\frac{1.1}{4.2} \times 100 = 26.2\%$
- the profit margin for the year has improved between 2014 and 2015 by 4.1% as the revenue nearly £0.26 was profit for the year after all deductions had been made from dividends
- the improvement could be due to better management of costs in the business or implementing the suggested improvements of staff
- the business appears to have a positive relationship with its employees as they are often
- the retention rate has increased by 1.3% (97.8% – 96.5%) thus indicating a positive relationship with the business
- this could be in part due to staff feeling part of the organisation, as they are often
- in addition, good staff performance is recognised through the employee of the month award so staff feel their efforts are recognised
- staff will also feel the business is willing to invest in them due to the training provided to support their development
- each of the above human resources factors would contribute to staff being

Award up to **3 marks** for the profit margin for the year calculation

1 mark correct formula  
1 mark correct numbers  
1 mark correct answer

Level	Typical candidate response
3	Good response that focuses on the demands of the question with a developed analysis and is effectively applied in context.
2	Reasonable response that focuses on some of the demands of the question with a developed analysis and is applied in context.
1	Limited response with little focus on the demands of the question with a limited development of analysis and descriptive application in context.

b) Possible answers:

**Staff do contribute**

- they suggest improvements, which can improve the efficiency of the business
- staff are probably motivated due to the democratic style of leadership, which encourages them to perform to the best of their ability. This results in them providing services to the business
- staff efforts have contributed to the business winning awards and being recognised
- all of the above would attract customers and allow the business to enjoy success both during peak and non-peak seasons

**Other factors**

- budget hotel market is growing; therefore, market trends are a factor in its success
- the marketing strategy of the business influences success. It has chosen to be located in areas popular with tourists – coastal regions – but also convenient to business areas and has good transportation links.
- the national award helps the hotel chain to be differentiated from rivals in the market
- it is presumed market conditions are favourable for both domestic and overseas tourists

**Overall**

- as it is a service industry business employees have a significant part to play in its success
- however, they are not the only reason for the chain's success
- favourable market conditions would have also influenced this success, along with the business choosing appropriate locations to open which meet the expectations of its customers

**16 marks available**

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## Paper 2: Business 2

### Marking criteria

Use the following marking criteria to award marks. Please note guidance on awarding marks for some suggested answers.

#### 4 marks

Level	Typical candidate response
3	Good knowledge and understanding demonstrated and is applied in the context.
2	Reasonable knowledge and understanding demonstrated and some applied in context.
1	Limited knowledge and understanding demonstrated and lacking application in context.

#### 9 marks

Level	Typical candidate response
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context.
2	Reasonable response that focuses on some of the demands of the question with analysis and is applied in context.
1	Limited response with little focus on the demands of the question with limited analysis and descriptive application in context.

#### 16 marks

Level	Typical candidate response
4	Excellent key response that focuses on the demands of the question with well-developed analysis throughout. The response is consistently in context. The judgement is consistently linked to analysis with a balanced response, which focuses on the question throughout.
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context. Judgement linked to analysis, which is balanced across the question as a whole.
2	Reasonable response that focuses on some of the demands of the question with analysis and applied in context. Judgement linked to analysis but lacks balance across the question.
1	Limited response with little focus on the demands of the question with limited analysis and descriptive application in context. Judgement made but limited.

#### 18 marks available

Level	Typical candidate response
5	Excellent key response that focuses on the demands of the question with well-developed analysis throughout. The response is consistently in context. The judgement is consistently linked to analysis with a balanced response, which focuses on the question throughout.
4	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context. Judgement linked to analysis, which is balanced across the question as a whole.
3	Reasonable response that focuses on some of the demands of the question with analysis and is applied in context. Judgement linked to analysis but lacks balance across the question.
2	Limited response with little focus on the demands of the question with limited analysis and mainly descriptive application in context. Judgement made but limited.
1	A weak response lacking focus on the demands of the question. Descriptive application in context. Judgements are based on assertions.

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1. **5 marks available**

£0.05 (processing) + £0.30 (labour) + £0.26 (ingredients) + £0.14 (packaging) = **£0.75**

**1 mark for correct formula and 1 mark for correct answer**

£3.25 – £0.75 = **£2.50 contribution per litre**

**1 mark for correct formula and 1 mark for correct answer**

$\frac{£3,500}{£2.50} = 1,400$  litres per month is the break-even quantity

**1 mark for correct answer**

2. **3 marks available**

Budgeted income – budgeted expenditure = budgeted profit

£4,760 (labour) + £1,200 (stock) + £1,085 (other costs) = £7,045 (budgeted expenditure)

**1 mark for correct formula and 1 mark for correct answer**

£9,150 – £7,045 = £2,105 (budgeted profit)

**1 mark for correct answer**

3. Possible answers:

- If the business does need to acquire a loan or extend its overdraft to cover losses, an ice cream parlour, a set of clear budget statements could support a financial statement to a potential lender. This indicates that the business is well planned and managed.
- As a business embarks on expanding costs will be incurred. Setting a budget can help ensure that overspends are avoided.
- Setting a budget allows the business to monitor its performance against the budget. In the event of a downturn in the economy a budget could assist the business in identifying areas of failure, along with the strategies that are needed for future success.
- By setting budgets for the individual sales areas of the business – for example, by region – the budget holders of these areas. They will have control over decision-making in their areas. This could be motivational as they have been given responsibility.

**9 marks available**

4. Puddle Down Farm's ice cream is not particularly sensitive to a change in price. Its price elasticity of demand indicates demand is price inelastic. As the coefficient is negative and less than 1, it means that if the price will decrease, but it will be a smaller proportional change than the percentage change in price. The business's revenue increasing rather than decreasing. Timothy is correct that the price should be increased although demand will slightly fall revenue will still be increased. Increasing the price will increase revenue.

**4 marks available**

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5. Possible answers:

- Opening balance (QTR 2) + net cash flows (QTR 2) = closing balance
- $-\text{£}2,350 + \text{£}10,250 = \text{£}7,900$  – allow up to **3 marks**
- The construction work necessary for the product range will lead to the business being closed in Quarter 1. This may cause problems for the business if it is not able to meet its obligations and may damage the good reputation of the business and may not be easily repaired. However, if this is likely to occur, financial arrangements could be put in place to prevent this, such as an overdraft, as the negative cash balance is for less than one year; therefore, the business could ask Suppliers to be paid longer to pay, thus delaying payments out of the business.
- The negative cash balance is short term, suggesting that it is not a permanent problem. In Quarter 2 a positive cash balance of £7,900 is predicted. This indicates that any financial arrangements are likely to be secured, as a potential lender can clearly see this is not a long-term problem.
- The cash flow forecast does not appear to allow for the additional income and costs of either opening the ice cream parlour or accepting the supermarket order. These figures provide a flow forecast to have a certain picture of the business's expected cash flow position.

Award up to **3 marks** for the Quarter 2 closing cash balance calculation

**1 mark each** for the correct formula, data and answer

Level	Typical candidate response
3	Good response that focuses on the demands of the question with well-developed analysis and is effectively applied in context.
2	Reasonable response that focuses on some of the demands of the question with developed analysis and is applied in context.
1	Limited response with little focus on the demands of the question with little development of analysis and descriptive application in context.

**Total of 9 marks available**

6. Possible answers:

**Positives of working at full capacity**

- The current capacity utilisation is 80%. The business has spare capacity that is not being used.
- Increasing the capacity could allow the business to increase its profits.
- If 2,000 litres are sold a month the business makes approximately £1,500 profit.
- Operating at 2,500 units provides the business with an additional monthly profit of £1,500.
- Clearly if the capacity of the business is increased through the supermarket order, this will provide the business with the opportunity to increase its profits.
- Working at full capacity so it can service the supermarket contract provides the business with a stronger presence across the UK with its brand of ice creams.

**Drawbacks of working at full capacity**

- The business may incur additional costs to maintain and service the machinery or replace it to operate at full capacity.
- If the machinery breaks down during a production run it is unlikely the business will be able to produce the product, which could harm its reputation with suppliers.
- Staff will be required to work to their maximum over a continuous period of time, which is detrimental to the way in which they work. Errors could start to creep in when the product is produced. This would be a severe problem for the business as quality is an essential part of its success.

**Overall**

- It is difficult to state whether operating at full capacity will harm the business, as the impact on staff and existing customers needs careful consideration.
- However, working at full capacity even for the short term to meet all customer orders provides the opportunity for the business to improve its profitability and its reputation, indicating that at least for the short term it has the potential to provide more business.

**16 marks available**

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7. Possible answers:

## Negative impact on financial performance

- Less revenue per litre as the supermarket will be paying £0.75 less ( $£3.25 - £2.50$ ).
- As the business will be supplying 4,000 litres, the business will earn £3,000 less than the usual price.
- Existing business customers might consider Puddle Down Farm as disloyal to the supermarket for its products, which could result in them finding a new supplier and profits.
- Fixed costs have to be incurred to take on this order and there is no guarantee of continued business beyond two years.

## Positive impact on financial performance

- Assuming all other factors remain the same, except the selling price to the supermarket provides £1.75 contribution per unit ( $£2.50 - £0.75$ ). This is profit, assuming the fixed costs incurred. This is an additional £7,000 profit per month for the business in North West. This is an additional £84,000 of profit available to the business.
- The business currently is budgeting for a Quarter 2 profit of £2,105. Accepting the supermarket order would increase the quarterly profit to £21,000, which is significantly more than the stated budget.
- Assuming the supermarket order is expanded to all UK branches it could significantly increase the business's revenue.
- The profile of the brand is raised, which in itself can lead to greater brand recognition and choosing to purchase the brand beyond the supermarket, as they are familiar with it.

## Overall

- Clearly the supermarket order could significantly improve the profits for Puddle Down Farm.
- However, it all depends on the business's ability to manage the higher level of costs and any negative reaction from existing customers to the lower price received. If the expected benefits of this new order not materialising.

**16 marks available**

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8. Possible answers:

## Ice cream parlour

### For

- The ice cream market is growing, suggesting it is a good time to expand.
- Lower long-term fixed costs
- As the business has price inelastic demand it could increase prices, which would go towards covering the additional costs.
- There is no need to increase capacity or outsource production to a third party
- Less risky than the supermarket order, as the business maintains full control.

### Against

- It does not provide the same level of profit growth as the supermarket order.
- New employee skills may be required for this particular venture, which involves staff. Each of these increases costs.
- Can the existing business operations continue while the ice cream parlour is being set up? The business will miss out on revenue over the period of time it takes to get it ready. However, the subsequent additional revenue will resolve this.

## Supermarket order

### For

- Increased profit of £7,000 per month, £84,000 per annum.
- Potential of far greater profits than the above, if the brand is launched across all supermarkets.
- Improved brand recognition, which in itself can help it to stand out in the market.
- Being associated with the supermarket could make it become the must-have product.
- Ice cream market is growing.

### Against

- Supermarket demanding a lower selling price.
- Response of existing customers to the above.
- What are the possible demands the supermarket will place on the business? Will it want special packaging, etc.? Will it want to discount the product during special promotions? What are the costs associated with this?
- There is no guarantee the contract will be extended beyond the two years. If the business supplies the supermarket, will it be able to meet the additional fixed costs after the initial two-year contract?
- Existing capacity cannot even meet the initial two-year supermarket contract; therefore, the business will have to outsource. This is risky as the business will not have direct control over the production process. This might involve outsourcing. This is risky as the business will not have direct control over the production process. This might involve outsourcing. This is risky as the business will not have direct control over the production process. The brand could be damaged.

### Overall

- The final decision will depend on the level of risk that the business is willing to take. This will be determined by market research conducted by Timothy. If the venture is considered too high risk, the business will not proceed.
- It will also depend on how each option fits in with the corporate objectives.
- Furthermore, the quality of the research carried out will influence the decision.
- The supermarket order might be considered riskier, as there is no guarantee it will be extended beyond the two years; therefore, the business might decide to go with the ice cream parlour, which has more certainty. However, it would have to accept the profits will not be at the same level as the supermarket order.

**18 marks available**

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