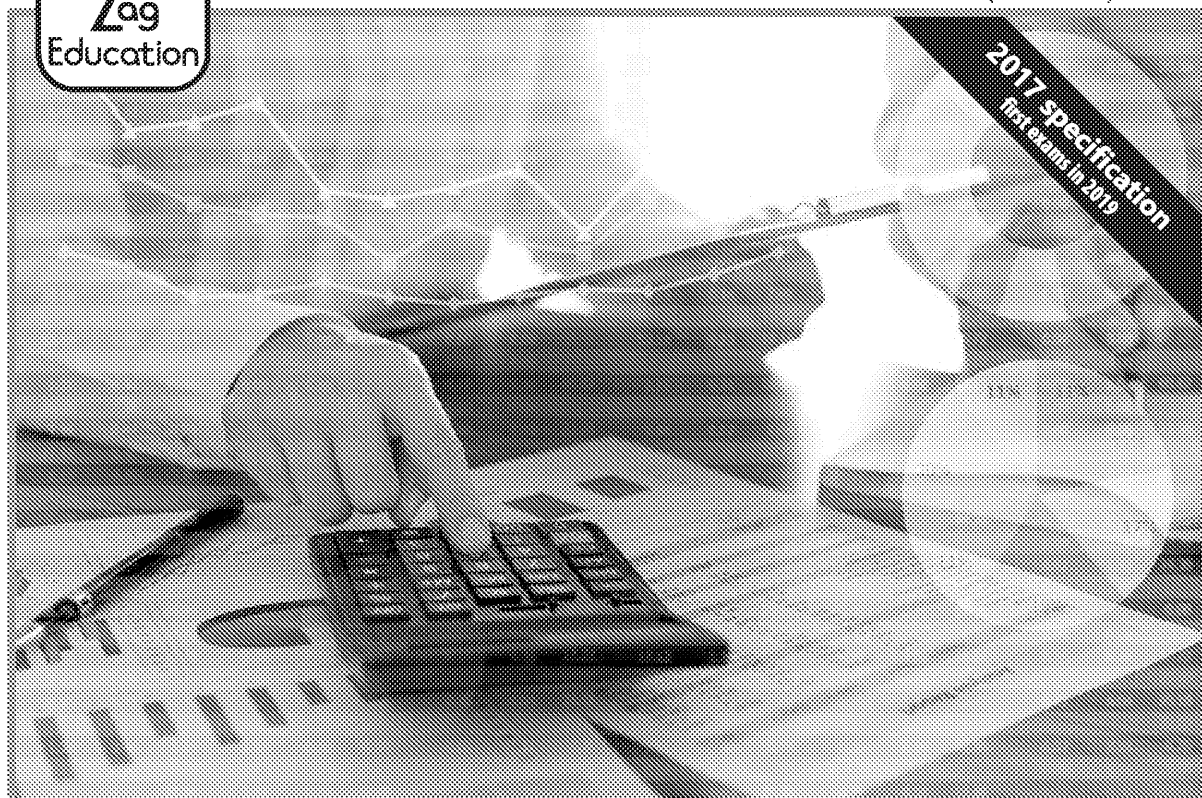




101 Calculation Activities

for GCSE (9–1) OCR Business

P Miles



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Teacher's Introduction

This two-set resource of 101 calculation-based questions has been written to support the OCR GCSE (9–1) Business specification.

The calculation questions are split into the following areas:

- percentages and percentage change
- averages
- revenue
- costs and profits
- gross profit margin and net profit margin
- average rate of return
- cash flow forecasts, total costs, total revenue and net cash flow
- break-even

Remember!

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

Answers are provided for all questions at the end of the resource. The questions are provided in both write-on and non-write-on formats to suit your teaching needs except for the section on cash flow forecasts where students need to write their answers on the page.

Set A and Set B questions

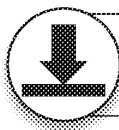
Questions in Set A mirror those in Set B – the format for both sets is the same. The calculations tested in Set A are retested in Set B using different data, designed to allow the students to practise the calculation skill again either in class as a consolidation activity, outside class for homework, or as exam preparation. This makes the pack a very flexible resource capable of multiple uses in the teaching and learning environment.

The questions are provided in two formats:

1. Paper format – write-on and non-write-on
2. PowerPoint presentations available via Product Support download

This resource is designed to support non-specialists finding themselves delivering business studies, and to reduce the workload for more experienced teachers.

P Miles, September 2022



The PowerPoint presentation is provided on the ZigZag Education Support Files system, which can be accessed via zzed.uk/productsupport

Percentages and percentage change

1. Calculate the percentage change in the revenue of a small factory between your answer to one decimal place.)

- Year 1: £307,000
- Year 2: £329,000

2. Calculate the percentage change in the revenue of a small pottery business trading. (Give your answer to one decimal place.)

- Year 3: £34,500
- Year 4: £41,900

3. Calculate the percentage change in the revenue of a garage over the past two years. (Give your answer to one decimal place.)

- Previous year: £272,000
- Current year: £309,000

4. Calculate the percentage change in the revenue of a boat hire firm between 2018 and 2019. (Give your answer to one decimal place.)

- 2018: £62,000
- 2019: £78,000

5. Calculate the percentage change in the revenue of a pony trekking centre over the past two years. (Give your answer to one decimal place.)

- Year 1: £78,000
- Year 2: £85,000

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6. A personal trainer hopes to have achieved an increase in revenue of at least more established. Did she achieve this between 2018 and 2019?

- 2018: £32,000
- 2019: £41,000

7. The owners of a garden centre have set themselves a target of achieving an 'inflation plus 12%'. Inflation is 2% – did the owners achieve their aim between

- Year 1: £162,500
- Year 2: £184,900

8. Three branches of a high-street shoe shop chain are set a target of increasing by 15% this August, compared to last August. They choose different methods

- Branch A offers a discount on a pair of trainers when bought with a full price pair of shoes
Aug Y1: £92,000; Aug Y2: £104,500
- Branch B offers free polish and shoe labels with every pair of school shoes
Aug Y1: £86,000; Aug Y2: £97,800
- Branch C offers 10% off the price of all school shoes purchased in August
Aug Y1: £87,000; Aug Y2: £101,600

Did any of the three branches achieve the 15% increase? (Give your answer in full)

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9. Three convenience stores dominate the market in the Eastshire area. The value of the market is £2,500,000. Calculate (to two decimal places) the market share of each store from their turnover.

Discount Plus: £800,000

Easyshop: £765,000

Freshshop: £921,000

10. Flexigym is a recent entrant to the private gym market. The market is valued at £4 million. Flexigym's market share is measured at 7%. What is their turnover?

Flexigym launches a successful marketing campaign, and the outcome is the market value rises to £5 million. What is Flexigym's new market share?

The value of the private gym market is still £4 million. What is Flexigym's new market share?

11. A business decides to stop making products where **either** sales have fallen for two years or where in the last year the product has a market share < 8%.

Which product(s) will the business stop making?

Product	Last year's sales revenue	This year's sales revenue
A	£700,000	£660,000
B	£362,000	£312,000
C	£460,000	£406,000
D	£851,000	£775,000

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12. Five businesses dominate a particular market. The value of the market is £900,000. The value of each business are shown in the table below. Calculate (to two decimal places) the market share of each business.

A	£270,000
B	£87,000
C	£115,000
D	£240,000
E	£170,000
Others	£18,000

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13. A beauty therapist reviews her business over the last year. She would like to know the total revenue was generated by each treatment. (Give your answers to two decimal places)

Total revenue for the year: £27,000

Revenue from each treatment:

- Manicure/pedicure: £14,000
- Brow reshape: £3,000
- Lash tint: £3,500
- Facial: £6,500

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14. An independent high-street jewellery shop owner would like to know what was generated by each product range. (Give your answers to two decimal places)

Total revenue for the year: £83,450

Revenue from products:

- Engagement rings: £18,750
- Wedding rings: £6,200
- Replacement watch batteries: £1,620
- Replacement watch straps: £325
- Earrings: £17,555
- Necklaces: £29,000
- Wristwatches: £10,000



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15. A self-employed painter and decorator is thinking about how best to advertise. He wants to focus on listing all tasks that contributed more than 20% of last year's total revenue.

Which tasks should be mentioned in the advert?

Last year's revenue: £43,000

Revenue from different tasks:

- Wallpapering: £12,750
- Interior painting: £21,750
- Exterior painting: £4,800
- Staining woodwork: £3,700



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Averages

16. A carpet showroom monitors its sales revenue over the past six months, and the six-month period the year before.

	Feb	Mar	Apr	May
Last year	£8,250	£9,000	£10,200	£14,000
This year	£7,300	£4,000	£9,200	£9,500

- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for March?
- What is the percentage change in revenue for April?



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17. An independent travel agency reviews three of its holidays and the average past two years.

Complete the table below. Based on this data and the information in the table, recommend the travel agency stops offering?

Year	Holiday	Number of customers	Total revenue
2019	Peru Trek	22	£110,000
2019	Greek Islands	582	£331,740
2019	Spanish Villa	940	£648,600
2018	Peru Trek	15	£90,000
2018	Greek Islands	620	£372,000
2018	Spanish Villa	862	£603,400



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18. A newly established bed and breakfast business owner decides to use comparison pricing by calculating the average amount charged by similar businesses. The room rates charged by similar businesses are:

- £67
- £82
- £62
- £74
- £65

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products are tested and the following breaking points have been recorded as lasting the following lengths of time during the tests:

- What is the average length of time taken for a product to break?
- How many of these products have a breaking point that is higher than the average?

Product	Time before breaking
A	6 minutes
B	5 minutes
C	7 minutes 30 seconds
D	6 minutes 30 seconds
E	4 minutes

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20. A guesthouse owner in the South West is writing a brochure to encourage guests to include the average temperature in June, as he gets fewer bookings in the month.

From the figures provided of the average June temperature for the last six years, the guesthouse owner should include in his brochure.

Year	Temperature (degrees)
Year 1	18
Year 2	17
Year 3	21
Year 4	17
Year 5	22
Year 6	19



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21. A garden centre manager is concerned about the amount of space allocated to compost. The space could be used for other products with a high profit margin, but he is disappointed that they can't buy compost.

The manager decides to calculate the average number of bags sold each month over four years. He will then stock the average quantity this year. Round your answer to the nearest bag of compost.

Bags of compost sold				
Month	Year 1	Year 2	Year 3	Year 4
March	52	48	49	60
April	68	74	67	72
May	103	107	124	108
June	158	143	175	162
July	140	131	156	147
August	100	99	130	121
September	80	78	87	84



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22. Managers at a call centre monitor the number of calls taken by staff working five days.

Calculate each member of staff's HOURLY number of calls taken over the past week to whole numbers of calls.

Staff whose average falls below six calls per hour over the week will be offered help. How many members of staff will receive help?

Staff	Mon	Tue	Wed	Thur	Fri
A	40	41	43	32	39
B	44	40	46	41	40
C	46	41	41	38	39
D	38	37	39	37	41
E	42	39	41	41	42
F	41	41	41	39	38
G	41	41	41	42	40

23. The owner of a small independent bookshop has started to sell online in addition to her shop. She monitors her sales over the past working week (six days).

- Calculate the average daily spend per customer in the shop and online.
- Calculate the average weekly spend per customer in the shop and online.

	Mon	Tue	Wed	Thur
Shop customers	8	12	17	12
Total spend	£120	£396	£544	£96
Online customers	14	23	10	8
Total spend	£420	£920	£550	£344

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24. A factory manager aims to save some time in the workplace by moving the break room to the production line. They all take breaks at the same time – the start and finish of each shift on the production buzzer. The manager is interested to see how much time could be saved getting to the break room.

Two members of staff volunteer to be timed.

Employee A using original break room

- Day 1: departs break room 12.15, at workstation 12.21
- Day 2: departs break room 12.15, at workstation 12.20
- Day 3: departs break room 12.15, at workstation 12.22

Employee B using new break room

- Day 1: departs break room 12.15, at workstation 12.18
- Day 2: departs break room 12.15, at workstation 12.19
- Day 3: departs break room 12.15, at workstation 12.17

What is the average time for Employee A and Employee B to return to their workstation?

If each shift consists of 20 employees, how much time is lost on average using the original break room compared to the new one?

25. An animal sanctuary relies completely on donations to do its work. This means they have a limited budget. They would like to compare the cost of two different brands of cat food. Since the number of cats cared for by the sanctuary fluctuates, they need to know the average cost of feeding the cats.

They would like to compare the cost of two different brands of cat food. Since the number of cats cared for by the sanctuary fluctuates, they need to know the average cost of feeding the cats.

- Brand X food feeds 16 cats for seven days. It costs £168.
- Brand Y food feeds 19 cats for seven days. It costs £192.85.

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26. Three young athletes attend a meet where they will each compete in five events for the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 points and 3rd place is awarded 2 points.
- Every athlete achieving an average four points over all five events will be selected for the county team.

Which athlete/s is/are selected?

Position			
	Athlete X	Athlete Y	Athlete Z
100 m hurdles	2	1	4
High jump	3	2	1
Javelin	2	1	4
Long jump	3	3	1
400 m	4	1	2

27. You have been offered three different part-time jobs, but they have different conditions. You have to pay for your bus fare yourself.

- Calculate the hourly rate per job.
- Then, deduct your travel expenses to find out how much each job would be worth.

Job A: 15 hours a week over three shifts; £127.50 in total; return bus fare £2.00

Job B: 12 hours a week over two shifts; £105 in total; return bus fare £3.00

Job C: 16 hours a week over four shifts; £144.80 in total; return bus fare £3.50

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28. 15 adults study for an accounting qualification via an online college. Their raw

- What was the average score for the cohort?
- How many of the students in this cohort exceeded the average score?

Student	A	B	C	D	E	F	G	H	I	J
Score	18	26	14	22	19	15	24	30	11	17

29. The owners of three large shopping malls have to decide which one to close their shopping unit.

From the data collected:

1. Calculate the total spend per visit for each mall.
2. Calculate the average spend per shop in each mall.
3. Calculate the average spend per HOUR in each mall.
4. Decide which mall to close down.

	Mall A	Mall B	Mall C
Average footfall per week	9,700	12,400	8,900
Average spend per customer	£62	£59	£42
Average time spent in mall per customer	1½ hours	2 hours	2½ hours
Number of shops in mall	60	72	83

30. An experienced childminder intends to set up her business in a new area. In the area, parents will pay in advance, she collects some information. What is the average before/after school, and for full day care?

- Parent A pays £67.50 for one child to have 15 hours of care before/after school.
- Parent B pays £152 for 40 hours of day care for one child.

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Revenue, costs and profit

31. A garment factory agrees an order with a customer to supply the following:

- 85 dresses @ £7 each
- 57 pairs of shorts @ £3 each
- 75 formal shirts @ £8 each

What is the total revenue from the order?

32. A potter supplies sets of besoms to a range of customers during the year:

- 14 sets of 'Autumn' @ £675 a set
- 23 sets of 'Spring' @ £750 a set
- 6 sets of 'Forest' @ £1,560 a set

What is the annual revenue for the potter?

33. The owner of a large garage specialising in MOT tests checks last month's records:

- 314 MOT tests carried out @ £70 each
- Received for repairs £12,300

What was the revenue for the garage last month?

34. At the end of the summer season the owner of a boat hire business based on the following figures for the different craft:

- 370 punt hires @ £60 each
- 440 swan pedalo hires @ £42 each
- 673 kayak hires @ £30 each
- 315 canoe hires @ £50 each

What was the total revenue for the season?

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35. The high season for a pony trekking centre is May to August. The centre needs revenue during the season to stay in business for the whole year.
- 619 customers paid £55 each for a private trek.
 - 1,406 customers paid £39 each for a group trek.

Did the trekking centre achieve its revenue target?

36. A personal trainer is worried about cash flow in her business. Each month she needs £1,700 to cover her business costs and living expenses.

In May she received payment for the following:

- 37 one-to-one sessions @ £30 each
- 16 group sessions @ £60 each

Did she achieve her target?

37. A garden centre owner hopes to increase revenue in December by selling seasonal items. Last year she achieved a revenue of £12,400.

- 314 wreaths sold @ £19.99 each
- 620 poinsettia plants in decorative pots sold @ £4.99 each

Has this year's revenue exceeded last year's for the same products?

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38. 1. Calculate the total costs for the garment factory for last year.
2. Revenue for the year was £172,000. How much profit was made?

Last year the factory used 800 rolls of fabric, 200 reels of thread and 15

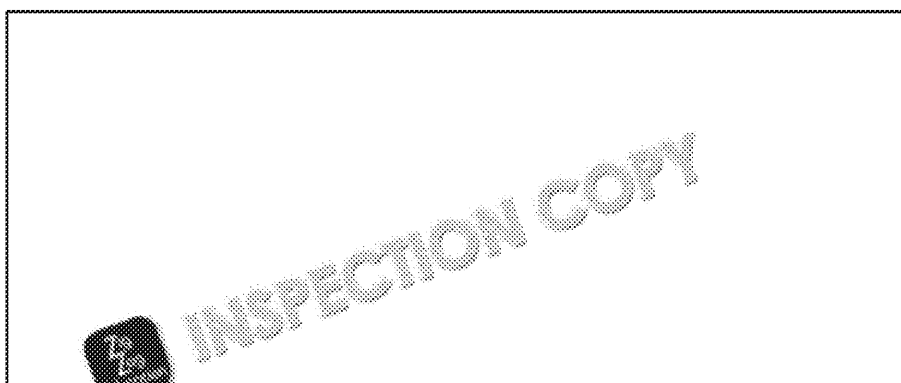
Rent	£48,000
Machinery purchase	£17,000
Fabric per roll	£25
Insurance premium	£1,850
Thread per reel	£2
Packaging plastic per roll	£6



39. 1. Calculate the total costs for the pottery studio for last year.
2. Revenue for the year was £43,500. How much profit was made?

Last year the pottery studio used 1,000 kg of clay, 2 litres of glaze and 2

Rent of studio	£12,000
Purchase of wheel and kiln	£7,000
Clay – 50 kg block	£70
Glaze – per litre	£9
Bubble wrap – per roll	£12
Advertising and website charges per annum	£720



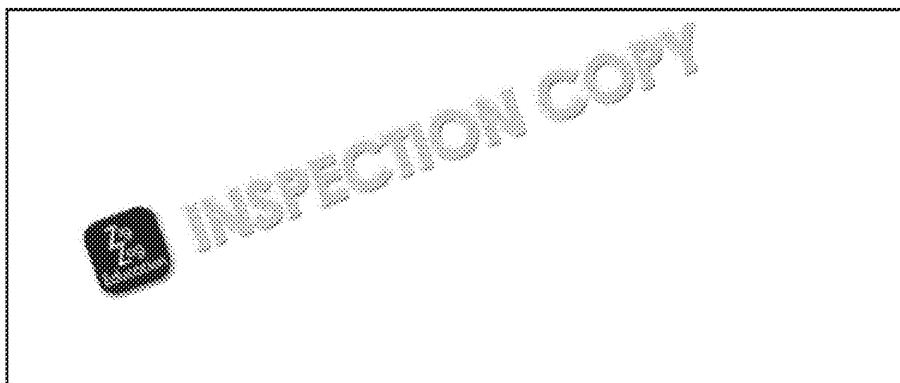
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40. 1. Calculate the total costs for the MOT garage for last year.
2. Revenue for the year was £322,800. How much profit was made?

Last year the garage fitted 900 new exhausts and used 1,400 litres of oil

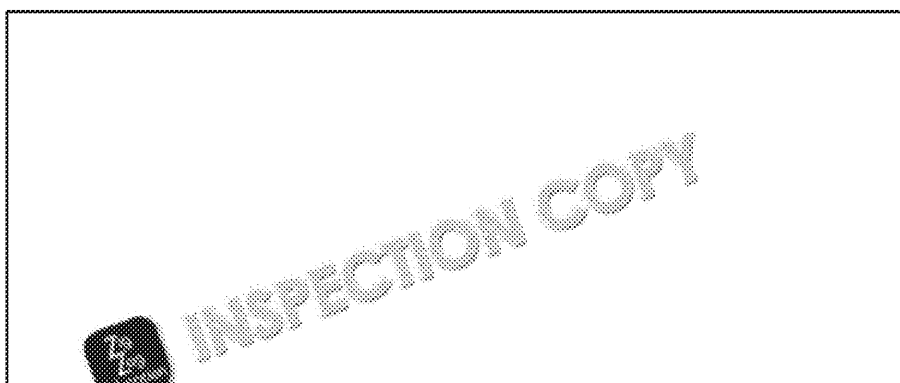
Rent of premises	£22,000
Purchase vehicle lift	£16,000
Engine oil per litre	£3
Replacement exhausts each	£140
Advertising per annum	£6,000



41. A pony trekking centre achieved a total revenue of £61,550. They paid for 1 tonne of feed and 23 sets of horseshoes, and they paid the instructor to work 70 hours

1. What were their total costs last year?
2. How much profit did they make?

Purchase ponies	£17,000
Tack	£8,300
Yard insurance	£2,850
Hay	£3 per bale
Feed	£12 per sack
Farrier (shoeing)	£80 per set
Self-employed instructor	£22 per hour



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42. A personal trainer achieved a revenue of £29,800 last year. She provided 2,316 one-to-one training sessions to clients.

1. What were her total costs?
2. Did she make a profit?

Van lease per annum	£3,600
Insurance per annum	£820
Equipment purchase	£1,700
Advertising per annum	£360
Average travel cost per client	£4.50
Leaflets / advice sheets per client	£0.80



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43. A part-time childminder received a revenue of £18,000 last year. He provided

1. Calculate his total costs using the following data.
2. Did he make a profit?

Insurance per annum	£870
Purchase play equipment	£1,480
Advertising per annum	£80
Food/heating cost per day	£10



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44. A self-employed dressmaker needs to make £15,000 profit a year from her business. She has a part-time job to make up her income. From the figures below, was this achieved last year?

Revenue overall for the year	£19,000
Sewing machine servicing cost	£120
Thread per reel	£2
Rolls of fabric (making wedding dresses)	£62 each
Advertising, phone costs and business cards	£325
Rent of studio per annum	£3,600

- 8 rolls of fabric were purchased
- 37 reels of thread were purchased



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45. An artist who specialises in lino cut printing sells his work through a specialist website. His work is very popular so he wants to see whether he made a profit > £1,000 last year.

- 83 prints were sold last year @ £42 each
- Each print cost £4.80 to produce
- Listing costs / commission for the website were/was £173
- Postage costs were £3 per print



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Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. (round your answers to two decimal places.)

- Revenue: £117,000
- Gross profit: £82,000
- Net profit: £53,500

47. Calculate gross profit margin and net profit margin for Year 1, for the sandwich bar.

At the end of Year 2, the council moved the bus stop that was adjacent to the sandwich bar. Calculate the gross profit margin and net profit margin to analyse the impact this had on the profit margin. (round your answers to two decimal places, where appropriate.)

Compare your answer with the figures for Year 4.

	Year 1	Year 2	Year 3	Year 4
Revenue	£59,000	£64,000	£61,000	£57,000
Gross profit	£35,400	£35,840	£31,720	£30,780
Net profit	£18,500	£19,250	£15,300	£17,750

48. The owner of a children's day nursery believes he is doing better in the second year than the first year. Use gross profit margin and net profit margin calculations (to two decimal places) to decide whether you agree.

	Year 1	Year 2
Revenue	£362,000.00	£407,000.00
Gross profit	£258,000.00	£283,000.00
Net profit	£90,000.00	£91,000.00

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49. Your friend is thinking about buying a local business – an independent stationery shop. The following information is provided and advise them whether or not to go ahead with the purchase.

	Year 1	Year 2	Year 3
Revenue	£187,000	£172,000	£164,000
Gross profit	£112,000	£103,000	£98,000
Net profit	£67,000	£61,000	£59,000

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50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the following information. (Give your answers to two decimal places.)

- Revenue: £172,000
- Cost of sales: £97,000
- Expenses: £17,500

51. Using the following information, calculate gross profit margin (GPM) and net profit margin (NPM). (Give your answers to two decimal places.)

- Revenue: £67,300
- Expenses: £12,600
- Cost of sales: £11,500

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52. Use the following data to calculate gross profit margin (GPM) and net profit margin (NPM) (answers to two decimal places.)

- Cost of sales: £24,800
- Expenses: £16,750
- Revenue: £93,200

53. Last year a small holiday park with static caravans achieved a gross profit margin of 35%.

This year, the weather hasn't been good, and there are lots of cheap foreign holidays. The park owner asks you to check whether this year they have exceeded their target.

- Revenue: £83,200
- Cost of sales: £24,200
- Expenses and interest: £24,380

54. Last year the data for a flower shop showed the following figures:

- Revenue: £76,000
- Gross profit: £58,000
- Net profit: £29,200

The accountant advises it would be prudent to aim to increase both gross profit and net profit by at least 3% this year.

Here are this year's figures. Has the aim been achieved? Show your answer.

- Revenue: £79,500
- Cost of sales: £21,000
- Net profit: £32,400

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55. The owner of a private gym is worried about the increasing trend in exercising and the advice of her accountant, who has emailed to say that last year her gross profit margin was 35%.

Looking at the figures below for this year, is the gym doing better or worse than last year?

- Revenue: £1,600,750
- Gross profit: £820,000
- Net profit: £543,320



56. The owner of a small boutique hotel is concerned that a new competitor who calls itself as 'dog friendly' may be damaging his business. It opened just over a year ago. Below are the figures for the boutique hotel, calculate the gross profit margin and net profit margin for the hotel and compare the impact of the competitor.

Last year:

- Revenue: £143,000
- Gross profit: £76,000
- Net profit: £49,000

This year:

- Revenue: £152,000
- Gross profit: £79,000
- Net profit: £51,000



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57. The owner of a small courier firm is considering retiring. In order to sell the business, he has been advised that both the gross profit margin and net profit margin need to be maintained for three years. Analyse his figures below (to two decimal places), and see whether he should retire.

	2017	2018	2019
Revenue £	76,000	81,000	83,500
Gross profit £	48,000	50,500	51,750
Net profit £	37,000	39,200	42,000



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58. Use the following information provided by your friend, who runs a pet boarding business, to calculate the gross profit margin and the net profit margin.

Revenue for the year	£26,000
Cost of sales	£7,800
Interest payments	£720
Advertising/website costs	£600
Vehicle costs	£4,080



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59. A small business specialising in accompanied mountain treks is struggling. Few mountain ranges are being sold. The owner is considering 'mothballing' the business if it improves. Look at the figures below. Calculate gross profit margin and net profit margin. Do you recommend?

	2016	2017	2018
Revenue £	64,000	68,000	48,000
Gross profit £	43,000	48,000	23,000
Net profit £	31,000	34,500	15,750



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60. The owner of an online fabric/sewing/knitting supplies business is thinking of closing the business. Analyse the last three years' figures and recommend whether or not to continue.

	Year 1	Year 2	Year 3
Revenue £	39,500	48,000	57,000
Gross profit £	28,000	35,500	45,500
Net profit £	21,000	28,500	37,800



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Average rate of return

61. Calculate the ARR for this machine. (Give your answer to two decimal places.)

- Purchase price of £87,000
- £32,000 profit generated over its five-year lifespan

62. A new forklift is purchased and is expected to be used for four years.

- The purchase price is £62,500.
- The machine generates profits of £15,000.

What is the ARR? (Give your answer to two decimal places.)

63. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£86,000
Profit	
Year 1	£22,000
Year 2	£17,500
Year 3	£15,250
Year 4	£11,300

64. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£172,000
Profit	
Year 1	£31,000
Year 2	£28,750
Year 3	£26,000
Year 4	£22,950
Year 5	£19,750

65. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£47,000
Profit	
Year 1	£18,270
Year 2	£19,100
Year 3	£18,700
Year 4	£17,320
Year 5	£16,870
Year 6	£16,240

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66. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£27,000
Profit	
Year 1	£8,000
Year 2	£8,200
Year 3	£7,500
Year 4	£7,000

67. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£93,750
Profit	
Year 1	£22,200
Year 2	£23,150
Year 3	£21,820
Year 4	£20,380

68. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£13,750
Profit	
Year 1	£8,100
Year 2	£6,800
Year 3	£5,900
Year 4	£5,700

69. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£42,000
Profit	
Year 1	£7,000
Year 2	£7,300
Year 3	£8,100
Year 4	£7,800
Year 5	£7,200

70. Which of these two vehicles would you choose, based on ARR? (Show your calculations)

- Vehicle A: purchase price £33,000; profit over five years £42,000
- Vehicle B: purchase price £26,000; profit over four years £35,000

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71. Which of these two machines would you choose, based on ARR? (Show your calculations)

- Machine 1: purchase price £13,000; profit over four years £18,400
- Machine 2: purchase price £17,000; profit over four years £27,000

72. Which of these two machines would you choose, based on ARR? (Show your calculations)

	X-300	X-350
Purchase price	£62,000	£76,000
Profit Year 1	£17,200	£17,480
Profit Year 2	£17,100	£18,000
Profit Year 3	£17,000	£18,200
Profit Year 4	£16,400	£17,300

73. A business has three options to replace existing machinery. Which of the three would you recommend, based on ARR? (Show your calculations to two decimal places.)

Purchase prices are: A £52,000, B £47,000, C £56,000.

Profit for each over five years is as follows:

	A	B	C
Year 1	£12,900	£12,150	£12,950
Year 2	£12,600	£11,800	£12,400
Year 3	£11,950	£11,150	£11,870
Year 4	£11,900	£10,700	£11,140
Year 5	£10,300	£10,350	£10,800

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74. A small dry cleaning business has decided to replace its cleaning equipment which would you recommend based on ARR? (Show your calculations to two decimal places.)

	Wash O Matic Purchase price £16,900	Speedy Wash Purchase price
Profit Year 1	£4,060	£5,010
Profit Year 2	£3,900	£4,830
Profit Year 3	£3,800	£3,980
Profit Year 4	£3,620	£2,850
Profit Year 5	£3,480	£1,940

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75. The owner of an orchard of traditional apples makes apple juice every year, with a 20% margin. It is time to replace the pressing machine and there are two options. Which would you recommend, based on ARR? (Show your calculations to two decimal places.)

	Super Press (price £7,300)	Traditional Apple Press (price £6,900)	
Profit Year 1	£4,000	£4,000	£4,000
Profit Year 2	£3,800	£4,200	£4,200
Profit Year 3	£3,500	£3,700	£3,700

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Cash flow forecasts, total costs, total revenue and net cash flow

76. Complete the gaps on the cash flow forecast.

Income	
Sales	£17,250
Total income	£
Expenditure	
Vehicle costs	£4,830
Postage/telephone	£290
Total expenditure	£
Net cash flow	£

77. Complete the gaps on the cash flow forecast.

Income	
Sales	£12,500
Royalties	£7,300
Total income	£
Expenditure	
Vehicle costs	£3,000
Stationery	£200.00
Telephone	£
Total expenditure	£3,660
Net cash flow	£

78. Complete the gaps on the cash flow forecast.

Income	
Sales	£
Total income	£83,200
Expenditure	
Studio rental	£7,000
Photographic paper	£900
Computer costs	£
Total expenditure	£8,350
Net cash flow	£

79. Complete the gaps on the cash flow forecast.

Income	
Sales	
Training fees	
Total income	
Expenditure	
Vehicle costs	
Office/admin	
Insurance	
Materials	
Total expenditure	
Net cash flow	

80. Complete the gaps on the cash flow forecast.

Cash inflow	
Revenue	
Total inflow	
Cash outflow	
Advertising	
Materials	
Telephone	
Total outflow	
Net cash flow	
Opening balance	
Closing balance	

81. Complete the gaps on the cash flow forecast.

Cash inflow	
Revenue	
Total inflow	
Cash outflow	
Advertising	
Materials	
Telephone	
Total outflow	
Net cash flow	
Opening balance	
Closing balance	

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82. Complete the gaps in the cash flow.

	April	May	June	
Total cash inflow	£17,250	£14,500	£15,000	£1
Total cash outflow	£9,300	£8,200	£10,050	£9
Net cash flow	£	£	£	£
Opening balance	£3,500	£	£	£
Closing balance	£	£	£	£

83. Complete the gaps in the cash flow.

	November	December	January	
Total cash inflow	£1,100,000	£1,400,000	£1,560,000	£1
Total cash outflow	£670,000	£699,000	£680,500	£7
Net cash flow	£	£	£	£
Opening balance	£630,000	£	£	£
Closing balance	£	£	£	£

84. Complete the gaps in the cash flow.

	August	September	October
Total cash inflow	£762.59	£625.87	£598.41
Total cash outflow	£213.21	£237.42	£186.42
Net cash flow	£	£	£
Opening balance	£437.21	£	£
Closing balance	£	£	£

85. Complete the gaps in the cash flow.

	Week 1	Week 2	Week 3
Total cash inflow	£187.52	£234.58	£140.38
Total cash outflow	£	£	£
Net cash flow	£120.00	£180.00	£92.00
Opening balance	£76.00	£	£
Closing balance	£	£	£

86. Complete the gaps in the cash flow.

	Week 5	Week 6	Week 7
Total cash inflow	£420.89	£323.48	£406.23
Total cash outflow	£	£463.22	£
Net cash flow	£311.47	£	£-94.95
Opening balance	£143.22	£	£
Closing balance	£	£	£

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87. Complete the gaps in the cash flow.

	April £	May £	June £
Cash inflow			
Revenue	1,200	1,450	1,385
Loan	0	800	0
Total inflow			
Cash outflow			
Wages	440	440	440
Utilities	80	80	80
Advertising	140	0	0
Loan repayment	0	0	100
Total outflow			
Net cash flow			
Opening balance	841		
Closing balance			

88. Complete the gaps in the cash flow.

	March £
Cash inflow	
Revenue	1,720
Total inflow	
Cash outflow	
Insurance	40
Vehicle	800
Advertising	190
Total cash outflow	
Net cash flow	
Opening balance	-248
Closing balance	

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89. Complete the gaps in the cash flow.

	September £	October £
Cash inflow		
Revenue	10,678	6,072
Total inflow		
Cash outflow		
Rent	1,700	1,700
Materials	8,060	6,049
Utilities	300	300
Total outflow		
Net cash flow		
Opening balance	266	
Closing balance	824	

90. Complete the gaps in the cash flow.

	February £	March £	April £
Cash inflow			
Revenue	5,070	5,140	5,002
Rent	200	200	200
Loan	3,000	0	0
Total inflow			
Cash outflow			
Telephone	130	130	130
Wages	2,370	2,370	2,370
Courier costs	950	1,085	990
Loan	0	425	425
Materials	5,500	800	200
Total outflow			
Net cash flow			
Opening balance	-2,075		
Closing balance			

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Break-even calculations

91. Using the following figures, calculate the break-even point for this business.

- Fixed costs: £9,500
- Selling price per unit: £87
- Variable cost per unit: £13

92. Using the following figures, calculate the break-even point for this business.

- Fixed costs: £16,000
- Selling price per unit: £120
- Variable cost per unit: £41

93. Using the following figures, calculate the break-even point for this business.

- Selling price per unit: £1,399
- Variable cost per unit: £430
- Fixed costs: £32,070

94. Using the following figures, calculate the break-even point for this business.

- Variable cost per unit: £5,920
- Fixed costs: £75,000
- Selling price per unit: £12,000

95. Using the following information given to you by a local business, calculate the investment they are making into a new machine.

- Purchase of machine: £16,000
- Total cost for machine operator: £1,200
- Variable cost per unit produced: £32
- Selling price per unit: £159

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96. An engineering firm has purchased a new computerised milling machine for

The milling machine cost £6,000. Their new product sells at £16.99 per unit. The variable costs per unit total £4.

Calculate the break-even point for this contract.

97. A business rents new premises. The rent for the premises is £24,000. The rates/taxes and Insurance is £3,620.

The new premises will be used to make a new product. The variable costs per unit are £12. The selling price per unit is £25.

Calculate the break-even point for this new venture.

98. A dog groomer sets up her own business in her garden.

- A wooden garden office is purchased to do the grooming in, for £7,500. The office is installed to the office cost £875.
- The dog bath cost £1,900 and a specialist grooming table £700. Advertising costs come to £1,060 per annum.
- Each groom is carried out for £38, and the cost per dog of shampoo and grooming is £12.

How many dogs need to be groomed for the break-even point to be reached?

99. A keen amateur baker sets up a micro business supplying wedding cakes. He has spent £1,000, sells each cake for £160, and has costed the ingredients and cake boxes at £40 each.

How many cakes does he need to sell in order to break even?

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100. A window cleaner sets up in her local area.

She buys a second-hand van for £3,600, ladders/buckets for £200, and calculates that fluid and fuel per customer will be £3. Prices vary per customer according to homes, but, on average, customers will be paying £17 each.

How many customers does she need in order to break even?

101. A keen gardener buys a new greenhouse for £2,000, and hopes to cover the cost by selling hanging baskets filled with spring flowers.

Each basket plus pot and plants costs £14. The selling price is £24.99. How many baskets does he need to cover the cost of the greenhouse?

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Percentages and percentage change

- Calculate the percentage change in the revenue of a small factory between Year 1 and Year 2 (Give your answer to one decimal place.)
 - Year 1: £307,000
 - Year 2: £329,000
- Calculate the percentage change in the revenue of a small pottery business trading between Year 3 and Year 4. (Give your answer to one decimal place.)
 - Year 3: £34,500
 - Year 4: £41,900
- Calculate the percentage change in the revenue of a large company over the past two years. (Give your answer to one decimal place.)
 - Previous year: £272,000
 - Current year: £300,000
- Calculate the percentage change in the revenue of a boat hire firm between 2018 and 2019. (Give your answer to one decimal place.)
 - 2018: £62,000
 - 2019: £78,000
- Calculate the percentage change in the revenue of a pony trekking centre over Year 1 and Year 2. (Give your answer to one decimal place.)
 - Year 1: £78,000
 - Year 2: £81,000
- A personal trainer hopes to have achieved an increase in revenue of at least 10% more established. Did she achieve this between 2018 and 2019?
 - 2018: £32,000
 - 2019: £41,000
- The owners of a garden centre have set themselves a target of achieving an increase of 'inflation plus 12%'. Inflation is 2% – did the owners achieve their aim between Year 1 and Year 2?
 - Year 1: £162,500
 - Year 2: £184,900
- Three branches of a high-street shoe shop chain are set a target of increasing their revenue by 15% this August, compared to last August. They choose different methods of promotion.
 - Branch A offers a discount on a pair of trainers when bought with a full-price pair of school shoes. Aug Y1: £92,000; Aug Y2: £104,500
 - Branch B offers free polish and shoe labels with every pair of school shoes. Aug Y1: £86,000; Aug Y2: £97,800
 - Branch C offers 10% off the price of school shoes purchased in August. Aug Y1: £87,000; Aug Y2: £111,150

Did any of the branches achieve the 15% increase? (Give your answer to one decimal place.)
- Three convenience stores dominate the market in the Eastshire area. The value of their sales in Year 1 and Year 2 are given below. Calculate (to two decimal places) the market share of each store from their competitors.

Discount Plus: £800,000
 Easyshop: £765,000
 Freshshop: £921,000

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10. Flexigym is a recent entrant to the private gym market. The market is valued at £4 million. The market share is measured at 7%. What is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is that the market value has increased by 10%. The value of the private gym market is still £4 million. What is Flexigym's new market share?

11. A business decides to stop making products where **either** sales have fallen for two years or the product has a market share < 8%.

Which product(s) will the business stop making?

Product	Last year's sales revenue	This year's sales revenue
A	£700,000	£660,000
B	£362,000	£362,000
C	£460,000	£415,000
D	£851,000	£775,000

12. Five businesses dominate a particular market. The value of the market is £900,000. Each business's share is given in the table below. Calculate (to two decimal places) the market share of each business.

A	£270,000
B	£87,000
C	£115,000
D	£240,000
E	£170,000
Others	£18,000

13. A beauty therapist reviews her business over the last year. She would like to know what the total revenue was generated by each treatment. (Give your answers to two decimal places.)

Total revenue for the year: £27,000

Revenue from each treatment:

- Manicure/pedicure: £14,000
- Brow reshape: £3,000
- Lash tint: £3,500
- Facial: £6,500

14. An independent high-street jewellery shop owner would like to know what the total revenue was generated by each product range. (Give your answers to two decimal places.)

Total revenue for the year: £83,450

Revenue from products:

- Engagement rings: £18,750
- Wedding rings: £6,200
- Replacement watch batteries: £1,620
- Replacement watch straps: £325
- Earrings: £17,555
- Necklaces: £29,000
- Wristwatches: £1,000

15. A self-employed painter and decorator is thinking about how best to advertise. He wants to focus on listing all tasks that contributed more than 20% of last year's total revenue.

Which tasks should be mentioned in the advert?

Last year's revenue: £43,000

Revenue from different tasks:

- Wallpapering: £12,750
- Interior painting: £21,750
- Exterior painting: £4,800
- Staining woodwork: £3,700

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Averages

16. A carpet showroom monitors its sales revenue over the past six months, and the six-month period the year before.

	Feb	Mar	Apr	May
Last year	£8,250	£9,000	£10,200	£14,000
This year	£7,300	£4,000	£9,200	£9,500

- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for March?
- What is the percentage change in revenue for April?

17. An independent travel agency reviews three of its holidays and the average number of stops over the past two years.

Based on the data and the information in the table, which holiday would you recommend?

Year	Holiday	Number of customers	Total revenue
2019	Peru Trek	22	£110,000
2019	Greek Islands	582	£331,740
2019	Spanish Villa	940	£648,600
2018	Peru Trek	15	£90,000
2018	Greek Islands	620	£372,000
2018	Spanish Villa	862	£603,400

18. A newly established bed and breakfast business owner decides to use competitor data to calculate the average amount charged by similar businesses. The room rates for similar businesses are:

- £67
- £74
- £82
- £65
- £62

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products are tested for breaking and have been recorded as lasting the following lengths of time during the tests:

- Product A: 6 minutes 30 seconds
- Product B: 5 minutes
- Product C: 7 minutes 30 seconds
- Product D: 6 minutes 30 seconds
- Product E: 4 minutes

Product	Time before breaking
A	6 minutes 30 seconds
B	5 minutes
C	7 minutes 30 seconds
D	6 minutes 30 seconds
E	4 minutes

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20. A guesthouse owner in the South West is writing a brochure to encourage guests to include the average temperature in June, as he gets fewer bookings in this month. From the figures provided of the average June temperature for the last six years, the guesthouse owner should include in his brochure.

Year	Temperature (degrees)
Year 1	18
Year 2	17
Year 3	21
Year 4	17
Year 5	22
Year 6	19

21. A garden centre manager is concerned about the amount of space allocated to compost. The space could be used for other products with a high profit margin, but he is disappointed that his staff can't buy compost.

The manager decides to calculate the average number of bags sold each month over the last four years. He will then stock the average quantity this year. Round your answer up to the nearest whole number.

Bags of compost sold				
Month	Year 1	Year 2	Year 3	Year 4
March	52	48	49	60
April	68	74	67	72
May	103	107	124	108
June	158	143	175	162
July	140	131	156	147
August	100	99	130	121
September	80	78	87	84

22. Managers at a call centre monitor the number of calls taken by staff working over the last five days.

Calculate each member of staff's HOURLY number of calls taken over the past five days, rounded to whole numbers of calls.

Staff whose average falls below six calls per hour over the week will be offered help. How many members of staff will receive help?

Staff	Mon	Tue	Wed	Thur	Fri
A	40	41	43	32	39
B	44	40	46	41	40
C	46	41	41	40	39
D	38	37	39	37	41
E	42	42	42	41	42
F	42	40	40	39	38
G	39	39	41	42	40

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23. The owner of a small independent bookshop has started to sell online in addition to her shop. She monitors her sales over the past working week (six days).

- Calculate the average daily spend per customer in the shop and online.
- Calculate the average weekly spend per customer in the shop and online.

	Mon	Tue	Wed	Thur
Shop customers	8	12	17	12
Total spend	£120	£396	£544	£96
Online customers	14	23	10	8
Total spend	£420	£920	£570	£344

24. A factory manager aims to save some time in the work place by moving the location of the production line. They all take breaks at the same time – the start and finish of each shift – on a buzzer. The manager is interested to see how much time could be saved getting to work.

Two members of staff will volunteer to be timed.

Employee A using original break room

- Day 1: departs break room 12.15, at workstation 12.21
- Day 2: departs break room 12.15, at workstation 12.20
- Day 3: departs break room 12.15, at workstation 12.22

Employee B using new break room

- Day 1: departs break room 12.15, at workstation 12.18
- Day 2: departs break room 12.15, at workstation 12.19
- Day 3: departs break room 12.15, at workstation 12.17

What is the average time for Employee A and Employee B to return to their workstation?

If each shift consists of 20 employees, how much time is lost on average using the original break room compared to the new one?

25. An animal sanctuary relies completely on donations to do its work. This means they have a limited budget.

They would like to compare the cost of two different brands of cat food. Since the number of cats cared for by the sanctuary fluctuates, they need to know the average cost of feeding the cats.

- Brand X food feeds 16 cats for seven days. It costs £168.
- Brand Y food feeds 19 cats for seven days. It costs £192.85.

26. Three young athletes attend a meet where they will each compete in five events for the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 points, 3rd place is awarded 2 points.
- Every athlete achieving an overall 20 or more points over all five events will be selected for the county team.

Which athlete/s is/are on the team?

	Position		
	Athlete X	Athlete Y	Athlete Z
100 m hurdles	2	1	4
High jump	3	5	1
Javelin	2	1	4
Long jump	2	3	1
400 m	4	1	2

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27. You have been offered three different part-time jobs, but they have different pay rates. You have to pay for your bus fare yourself.

- Calculate the hourly rate per job.
- Then, deduct your travel expenses to find out how much each job would pay you.

Job A: 15 hours a week over three shifts; £127.50 in total; return bus fare £2.00

Job B: 12 hours a week over two shifts; £105 in total; return bus fare £3.00

Job C: 16 hours a week over four shifts; £144.80 in total; return bus fare £3.00

28. 15 adults study for an accounting qualification via an online college. Their raw scores are as follows:

- What was the average score for the cohort?
- How many of the students in this cohort exceeded the average score?

Student	A	B	C	D	E	F	G	H	I	J
Score	18	26	22	25	19	15	24	30	11	17

29. The owners of three large shopping malls have to decide which one to close down to save costs.

From the data collected:

1. Calculate the total spend per visit for each mall.
2. Calculate the average spend per shop in each mall.
3. Calculate the average spend per HOUR in each mall.
4. Decide which mall to close down.

	Mall A	Mall B	Mall C
Average footfall per week	9,700	12,400	8,900
Average spend per customer	£62	£59	£42
Average time spent in mall per customer	1½ hours	2 hours	2½ hours
Number of shops in mall	60	72	83

30. An experienced childminder intends to set up her business in a new area. In this area, parents will pay in this area, she collects some information. What is the average cost of care before/after school, and for full day care?

- Parent A pays £67.50 for one child to have 15 hours of care before/after school.
- Parent B pays £152 for 40 hours of day care for one child.

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Revenue, costs and profit

31. A garment factory agrees an order with a customer to supply the following:
- 85 dresses @ £7 each
 - 57 pairs of shorts @ £3 each
 - 75 formal shirts @ £8 each

What is the total revenue from the order?

32. A potter supplies sets of bespoke tiles to a range of customers during the year:
- 14 sets of 'Autumn' @ £875 a set
 - 23 sets of 'Woodland' @ £750 a set
 - 6 sets of 'Forest' @ £1,560 a set

What is the annual revenue for the year?

33. The owner of a large garage specialising in MOT tests checks last month's records:
- 31 MOT tests carried out @ £70 each
 - Revenue for repairs £12,300

What was the revenue for the garage last month?

34. At the end of the summer season the owner of a boat hire business based on the following figures for the different craft.
- 370 punt hires @ £60 each
 - 440 swan pedalo hires @ £42 each
 - 673 kayak hires @ £30 each
 - 315 canoe hires @ £50 each

What was the total hire revenue for the season?

35. The high season for a pony trekking centre is May to August. The centre needs to generate enough revenue during the season to stay in business for the whole year.
- 619 customers paid £55 each for a private trek.
 - 1,406 customers paid £39 each for a group trek.

Did the trekking centre achieve its revenue target?

36. A personal trainer is worried about cash flow in her business. Each month she needs to generate revenue of £1,700 to cover her business costs and living expenses.

In May she received payment for the following:

- 37 one-to-one sessions @ £30 each
- 16 group sessions @ £60 each

Did she achieve her target?

37. A garden centre hopes to increase revenue in December by selling seasonal plants. Last year it achieved a revenue of £12,400.
- 314 wreaths sold @ £19.99 each
 - 620 poinsettia plants in decorative pots sold @ £4.99 each

Has this year's revenue exceeded last year's for the same products?

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38. 1. Calculate the total costs for the garment factory for last year.
2. Revenue for the year was £172,000. How much profit was made?

Last year the factory used 800 rolls of fabric, 200 reels of thread and 15

Rent	£48,000
Machinery purchase	£17,000
Fabric per roll	£25
Insurance premium	£1,850
Thread per reel	£2
Packaging plastic per roll	£6

39. 1. Calculate the total costs for the pottery studio for last year.
2. Revenue for the year was £43,500. How much profit was made?

Last year the pottery studio used 1,000 kg of clay, 2 litres of glaze and 2

Rent of studio	£12,000
Purchase of wheel and kiln	£7,000
Clay – 50 kg block	£70
Glaze – per litre	£9
Bubble wrap – per roll	£12
Advertising and website charges per annum	£720

40. 1. Calculate the total costs for the MOT garage for last year.
2. Revenue for the year was £322,800. How much profit was made?

Last year the garage fitted 900 new exhausts and used 1,400 litres of oil

Rent of premises	£22,000
Purchase vehicle lift	£16,000
Engine oil per litre	£3
Replacement exhausts each	£140
Advertising per annum	£6,000

41. A pony trekking centre achieved a total revenue of £61,550. They paid for 1 feed and 23 sets of horseshoes, and they paid the instructor to work 70 hours

1. What were their total costs last year?
2. How much profit did they make?

Purchase ponies	£17,000
Tack	£8,300
Yard insurance	£2,550
Hay	£3 per bale
Feed	£12 per sack
Farrier (shoes)	£80 per set
Employed instructor	£22 per hour

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42. A personal trainer achieved a revenue of £29,800 last year. She provided 2,316 one-to-one training sessions to clients.

1. What were her total costs?
2. Did she make a profit?

Van lease per annum	£3,600
Insurance per annum	£820
Equipment purchase	£1,700
Advertising per annum	£360
Average travel cost per client	£4.50
Leaflets / advice sheets per client	£0.80

43. A part-time childminder received a revenue of £12,000 last year. He provided 1,200 hours of care.

1. Calculate his total costs using the following data.
2. Did he make a profit?

Van lease per annum	£870
Purchase play equipment	£1,480
Advertising per annum	£80
Food/heating cost per day	£10

44. A self-employed dressmaker needs to make £15,000 profit a year from her business. She has a full-time job to make up her income. From the figures below, was this achieved last year?

Revenue overall for the year	£19,000
Sewing machine servicing cost	£120
Thread per reel	£2
Rolls of fabric (making wedding dresses)	£62 each
Advertising, phone costs and business cards	£325
Rent of studio per annum	£3,600

- 8 rolls of fabric were purchased
- 37 reels of thread were purchased

45. An artist who specialises in lino cut printing sells his work through a specialist gallery. The gallery is very popular so he wants to see whether he made a profit > £1,000 last year.

- 83 prints were sold last year @ £42 each
- Each print cost £4.80 to produce
- Listing costs / commission for the website were/was £173
- Postage costs were £3 per print

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Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. (Give your answers to two decimal places.)

- Revenue: £117,000
- Gross profit: £82,000
- Net profit: £53,500

47. Calculate gross profit margin and net profit margin for Year 1, for the sandwich bar.

At the end of Year 2 the local council moved the bus stop that was adjacent to the sandwich bar. Calculate the gross profit margin and net profit margin to analyse the impact this had on the profit margin. (Give your answers to two decimal places, where appropriate.)

Compare your answer with the answer for Year 4.

	Year 1	Year 2	Year 3	Year 4
Revenue	£59,000	£64,000	£61,000	£57,000
Gross profit	£35,400	£35,840	£31,720	£30,780
Net profit	£18,500	£19,250	£15,300	£17,750

48. The owner of a children's day nursery believes he is doing better in the second year than the first year. Use gross profit margin and net profit margin calculations (to two decimal places) to decide whether you agree.

	Year 1	Year 2
Revenue	£362,000.00	£407,000.00
Gross profit	£258,000.00	£283,000.00
Net profit	£89,000.00	£91,000.00

49. Your friend is thinking about buying a local business – an independent static caravan site. Use the gross profit margin (GPM) and net profit margin (NPM) (to two decimal places) analysed in the previous question to provide and advise them whether or not to go ahead with the purchase.

	Year 1	Year 2	Year 3
Revenue	£187,000	£172,000	£164,000
Gross profit	£112,000	£103,000	£98,000
Net profit	£67,000	£61,000	£59,000

50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the following data. (Give your answers to two decimal places.)

- Revenue: £172,000
- Cost of sales: £97,000
- Expenses: £17,500

51. Using the following information, calculate gross profit margin (GPM) and net profit margin (NPM) (to two decimal places.)

- Revenue: £67,300
- Expenses: £12,600
- Cost of sales: £11,500

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52. Use the following data to calculate gross profit margin (GPM) and net profit margin (answers to two decimal places.)
- Cost of sales: £24,800
 - Expenses: £16,750
 - Revenue: £93,200

53. Last year a small holiday park with static caravans achieved a gross profit margin of 44%.

This year, the weather hasn't been good, and there are lots of cheap foreign holidays. The park owner asks you to check whether this year they have exceeded last year's gross profit margin.

- Revenue: £83,200
- Cost of sales: £24,200
- Expenses and interest: £24,800

54. Last year a small flower shop showed the following figures:

- Revenue: £76,000
- Gross profit: £58,000
- Net profit: £29,200

The accountant advises it would be prudent to aim to increase both gross profit margin and net profit margin by at least 3% this year.

Here are this year's figures. Has the increase been achieved? Show your answers.

- Revenue: £79,500
- Cost of sales: £20,500
- Net profit: £32,400

55. The owner of a private gym is worried about the increasing trend in exercising at home. Following the advice of her accountant, who has emailed to say that last year her gross profit margin was 35%.

Looking at the figures below for this year, is the gym doing better or worse than last year?

- Revenue: £1,600,750
- Gross profit: £820,000
- Net profit: £543,320

56. The owner of a small boutique hotel is concerned that a new competitor with itself as 'dog friendly' may be damaging his business. It opened just over a year ago. Below for the boutique hotel, calculate the gross profit margin and net profit margin. What is the impact of the competitor?

Last year:

- Revenue: £152,000
- Gross profit: £76,000
- Net profit: £49,000

This year:

- Revenue: £152,000
- Gross profit: £79,000
- Net profit: £51,000

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57. The owner of a small courier firm is considering retiring. In order to sell the business, he has been advised that both the gross profit margin and net profit margin need to be maintained for three years. Analyse his figures below (to two decimal places), and see whether you

	2017	2018	2019
Revenue £	76,000	81,000	83,500
Gross profit £	48,000	50,500	51,750
Net profit £	37,000	39,200	42,000

58. Use the following information provided by your friend, who runs a pet boarding business, to calculate the gross profit margin and the net profit margin.

Revenue for the year	£26,000
Cost of sales	£7,800
Interest payments	£1,200
Advertising/website	£600
Vehicle costs	£4,080

59. A small business specialising in accompanied mountain treks is struggling. For the last three years, no new mountain ranges are being sold. The owner is considering 'mothballing' the business until it improves. Look at the figures below. Calculate gross profit margin and net profit margin. Do you recommend?

	2016	2017	2018
Revenue £	64,000	68,000	48,000
Gross profit £	43,000	48,000	23,000
Net profit £	31,000	34,500	15,750

60. The owner of an online fabric/sewing/knitting supplies business is thinking of closing the business. Analyse the last three years' figures and recommend whether or not to

	Year 1	Year 2	Year 3
Revenue £	39,500	48,000	57,000
Gross profit £	28,000	35,500	45,500
Net profit £	21,000	28,500	37,800

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Average rate of return

61. Calculate the ARR for this machine. (Give your answer to two decimal places.)
- Purchase price of £87,000
 - £32,000 profit generated over its five-year lifespan
62. A new forklift is purchased and is expected to be used for four years.
- The purchase price is £62,500.
 - The machine generates profits of £76,000.

What is the ARR? (Give your answer to two decimal places.)

63. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£86,000
Profit	
Year 1	£22,000
Year 2	£17,500
Year 3	£15,250
Year 4	£11,300

64. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£172,000
Profit	
Year 1	£31,000
Year 2	£28,750
Year 3	£26,000
Year 4	£22,950
Year 5	£19,750

65. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£47,000
Profit	
Year 1	£18,270
Year 2	£19,100
Year 3	£18,700
Year 4	£17,320
Year 5	£16,870
Year 6	£16,240

66. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£25,000
Profit	
Year 1	£8,000
Year 2	£8,200
Year 3	£7,500
Year 4	£7,000

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67. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£93,750
Profit	
Year 1	£22,200
Year 2	£23,150
Year 3	£24,900
Year 4	£21,820
Year 5	£20,380

68. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£13,750
Profit	
Year 1	£8,100
Year 2	£6,500
Year 3	£3,900
Year 4	£5,700

69. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£42,000
Profit	
Year 1	£7,000
Year 2	£7,300
Year 3	£8,100
Year 4	£7,800
Year 5	£7,200

70. Which of these two vehicles would you choose, based on ARR? (Show your calculations)

- Vehicle A: purchase price £33,000; profit over five years £42,000
- Vehicle B: purchase price £26,000; profit over four years £35,000

71. Which of these two machines would you choose, based on ARR? (Show your calculations)

- Machine 1: purchase price £13,000; profit over four years £18,400
- Machine 2: purchase price £17,000; profit over four years £27,000

72. Which of these two machines would you choose, based on ARR? (Show your calculations)

	X-300	X-350
Purchase price	£62,000	£58,000
Profit Year 1	£16,300	£17,480
Profit Year 2	£17,100	£18,000
Profit Year 3	£17,000	£18,200
Profit Year 4	£16,400	£17,300

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73. A business has three options to replace existing machinery. Which of the three would you recommend, based on ARR? (Show your calculations to two decimal places.)

Purchase prices are: A £52,000, B £47,000, C £56,000.

Profit for each over five years is as follows:

	A	B	C
Year 1	£12,900	£12,150	£12,950
Year 2	£12,600	£11,800	£12,400
Year 3	£11,950	£11,150	£11,870
Year 4	£11,900	£10,700	£11,140
Year 5	£10,300	£10,350	£10,800

74. A small dry cleaning business has decided to replace its cleaning equipment. Which would you recommend, based on ARR? (Show your calculations to two decimal places.)

	Wash O Matic Purchase price £16,900	Speedy Wash Purchase price £18,500
Profit Year 1	£4,060	£5,010
Profit Year 2	£3,900	£4,830
Profit Year 3	£3,800	£3,980
Profit Year 4	£3,620	£2,850
Profit Year 5	£3,480	£1,940

75. The owner of an orchard of traditional apples makes apple juice every year, with a 10% profit margin. It is time to replace the pressing machine and there are two options. Which would you recommend, based on ARR? (Show your calculations to two decimal places.)

	Super Press (price £7,300)	Traditional Apple Press (price £6,900)	
Profit Year 1	£4,000	£4,000	£4,000
Profit Year 2	£3,800	£4,200	£4,200
Profit Year 3	£3,500	£3,700	£3,700

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Break-even calculations

91. Using the following figures, calculate the break-even point for this business.
- Fixed costs: £9,500
 - Selling price per unit: £87
 - Variable cost per unit: £13
92. Using the following figures, calculate the break-even point for this business.
- Fixed costs: £16,000
 - Selling price per unit: £120
 - Variable costs per unit: £41
93. Using the following figures, calculate the break-even point for this business.
- Selling price per unit: £1,399
 - Variable cost per unit: £30
 - Fixed costs: £3,000
94. Using the following figures, calculate the break-even point for this business.
- Variable cost per unit: £5,920
 - Fixed costs: £75,000
 - Selling price per unit: £12,000
95. Using the following information provided to you by a local business, calculate the investment they are making into a new machine.
- Purchase of machine: £16,000
 - Training course for machine operator: £1,200
 - Variable cost per unit produced: £32
 - Selling price per unit: £159
96. An engineering firm has purchased a new computerised milling machine for £6,000. The milling machine cost £6,000. Their new product sells at £16.99 per unit. The variable costs per unit total £4.
- Calculate the break-even point for this contract.
97. A business rents new premises. The rent for the year is £24,000. The rates/utility Insurance is £3,620.
- The new premises will be used to make a new product. The variable costs per unit price per unit is £27.50.
- Calculate the break-even point for this new venture.
98. A dog groomer sets up her own business in her garden.
- A wooden garden office is purchased to do the grooming in, for £7,500 including the office cost £875.
 - The bath cost £1,900 and a specialist grooming table £700. Advertising costs come to £1,060 per annum.
 - Each groom is carried out for £38, and the cost per dog of shampoo and grooming is £10.
- How many dogs need to be groomed for the break-even point to be reached?
99. A keen amateur baker sets up a micro business supplying wedding cakes. He has a fixed cost of £1,000, sells each cake for £160, and has costed the ingredients and cake box at £100 per cake.
- How many cakes does he need to sell in order to break even?

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100. A window cleaner sets up in her local area.

She buys a second-hand van for £3,600, ladders/buckets for £200, and calculates that fluid and fuel per customer will be £3. Prices vary per customer according to homes, but, on average, customers will be paying £17 each.

How many customers does she need in order to break even?

101. A keen gardener buys a new greenhouse for £2,000, and hopes to cover the hanging baskets filled with spring flowers.

Each basket plus compost and plants costs £14. The selling price is £24.99. How many baskets does he need to cover the cost of the greenhouse?

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Percentages and percentage change

1. Calculate the percentage change in the revenue of a small factory between Year 1 and Year 2. (Give your answer to one decimal place.)

- Year 1: £449,000
- Year 2: £507,000

2. Calculate the percentage change in the revenue of a small pottery business between Year 3 and Year 4. (Give your answer to one decimal place.)

- Year 3: £38,400
- Year 4: £42,000

3. Calculate the percentage change in the revenue of a garage over the past two years. (Give your answer to one decimal place.)

- Previous year: £243,000
- Current year: £298,000

4. Calculate the percentage change in the revenue of a boat hire firm between 2018 and 2019. (Give your answer to one decimal place.)

- 2018: £45,000
- 2019: £53,000

5. Calculate the percentage change in the revenue of a pony trekking centre over the past two years. (Give your answer to one decimal place.)

- Year 1: £67,000
- Year 2: £72,000

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6. A personal trainer hopes to have achieved an increase in revenue of at least established. Did she achieve this between 2018 and 2019?

- 2018: £36,000
- 2019: £39,000

7. The owners of a garden centre have set themselves a target of achieving an 'inflation plus 12%'. Inflation is 2% – did the owners achieve their aim between

- Year 1: £143,500
- Year 2: £170,900

8. Three branches of a high-street shoe shop chain are set a target of increasing by 15% this August, compared to last August. They choose different methods

- Branch A offers a discount on a pair of trainers when bought with a full
Aug Y1: £92,000; Aug Y2: £114,000
- Branch B offers free polish and shoe labels with every pair of school shoes
Aug Y1: £86,000; Aug Y2: £88,400
- Branch C offers 10% off the price of all school shoes purchased in August
Aug Y1: £87,000; Aug Y2: £104,000

Did any of the three branches achieve the 15% increase? (Give your answer)

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9. Three convenience stores dominate the market in the Eastshire area. The value of the market is £2,500,000. Calculate (to two decimal places) the market share of each store from their turnover.

Discount Plus: £786,000

Easyshop: £841,000

Freshshop: £1,200,000

10. Flexigym is a recent entrant to the private gym market. The market is valued at £4 million. Flexigym's market share is measured at 9%. What is their turnover?

Flexigym launches a successful marketing campaign, and the outcome is that the market value has increased by 25%.

The value of the private gym market is still £4 million. What is Flexigym's new market share?

11. A business decides to stop making products where **either** sales have fallen for two years or where in the last year the product has a market share < 8%.

Which product(s) will the business stop making?

Product	Last year's sales revenue	This year's sales revenue
A	£700,000	£602,000
B	£362,000	£330,000
C	£460,000	£415,000
D	£851,000	£811,000

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12. Five businesses dominate a particular market. The value of the market is £900,000. The value of each business are shown in the table below. Calculate (to two decimal places) the market share of each business.

A	£190,000
B	£95,000
C	£124,000
D	£255,000
E	£178,000
Others	£58,000

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13. A beauty therapist reviews her business over the last year. She would like to know the total revenue was generated by each treatment. (Give your answers to two decimal places)

Total revenue for the year: £33,000

Revenue from each treatment:

- Manicure/pedicure: £17,000
- Brow reshape: £5,000
- Lash tint: £4,000
- Facial: £7,000

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14. An independent high-street jewellery shop owner would like to know what was generated by each product range. (Give your answers to two decimal places)

Total revenue for the year: £95,450

Revenue from products:

- Engagement rings: £19,750
- Wedding rings: £7,800
- Replacement watch batteries: £1,920
- Replacement watch straps: £525
- Earrings: £15,455
- Necklaces: £31,000
- Wristwatches: £19,000



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15. A self-employed painter and decorator is thinking about how best to advertise. He wants to focus on listing all tasks that contributed more than 20% of last year's total revenue.

Which tasks should be mentioned in the advert?

Last year's revenue: £47,500

Revenue from different tasks:

- Wallpapering: £14,000
- Interior painting: £22,850
- Exterior painting: £7,200
- Staining woodwork: £3,450



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Averages

16. A carpet showroom monitors its sales revenue over the past six months, and the six-month period the year before.

	Feb	Mar	Apr	May
Last year	£8,720	£8,400	£11,090	£13,700
This year	£7,000	£3,000	£9,450	£9,900

- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for March?
- What is the percentage change in revenue for April?



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17. An independent travel agency reviews three of its holidays and the average past two years.

Complete the table below. Based on this data and the information in the table, recommend the travel agency stops offering?

Year	Holiday	Number of customers	Total revenue
2019	Peru Trek	29	£84,000
2019	Greek Islands	560	£410,000
2019	Spanish Villa	910	£725,000
2018	Peru Trek	15	£78,000
2018	Greek Islands	620	£343,000
2018	Spanish Villa	862	£598,000



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18. A newly established bed and breakfast business owner decides to use comparison pricing by calculating the average amount charged by similar businesses. The room rates charged by similar businesses are:

- £65
- £84
- £60
- £79
- £67

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products are tested and the following breaking points have been recorded as lasting the following lengths of time during the tests:

- What is the average length of time taken for a product to break?
- How many of these products have a breaking point that is higher than the average?

Product	Time before breaking
A	6 minutes 20 seconds
B	7 minutes 10 seconds
C	5 minutes 5 seconds
D	8 minutes 15 seconds
E	4 minutes 10 seconds

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20. A guesthouse owner in the South West is writing a brochure to encourage guests to include the average temperature in June, as he gets fewer bookings in this month.

From the figures provided of the average June temperature for the last six years, the guest house owner should include in his brochure.

Year	Temperature (degrees)
Year 1	19
Year 2	18
Year 3	23
Year 4	18
Year 5	22
Year 6	23



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21. A garden centre manager is concerned about the amount of space allocated to compost. The space could be used for other products with a high profit margin, but he is disappointed that they can't buy compost.

The manager decides to calculate the average number of bags sold each month over the last four years. He will then stock the average quantity this year. Round your answer up to the nearest whole number.

Bags of compost sold				
Month	Year 1	Year 2	Year 3	Year 4
March	48	56	55	49
April	76	72	68	70
May	98	105	116	110
June	160	137	178	160
July	138	137	142	138
August	101	98	125	128
September	87	73	98	82



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22. Managers at a call centre monitor the number of calls taken by staff working five days.

Calculate each member of staff's HOURLY number of calls taken over the past week to whole numbers of calls.

Staff whose average falls below six calls per hour over the week will be offered help. How many members of staff will receive help?

Staff	Mon	Tue	Wed	Thur	Fri
A	38	45	47	30	34
B	40	45	43	46	43
C	40	42	38	34	32
D	33	38	42	28	33
E	40	34	35	38	43
F	37	41	40	32	31
G	42	43	43	36	47

23. The owner of a small independent bookshop has started to sell online in addition to her shop. She monitors her sales over the past working week (six days).

- Calculate the average daily spend per customer in the shop and online.
- Calculate the average weekly spend per customer in the shop and online.

	Mon	Tue	Wed	Thur
Shop customers	9	15	10	10
Total spend	£127	£406	£594	£82
Online customers	15	28	7	17
Total spend	£425	£905	£55	£303

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24. A factory manager aims to save some time in the workplace by moving the production line. They all take breaks at the same time – the start and finish buzzer. The manager is interested to see how much time could be saved getting

Two members of staff volunteer to be timed.

Employee A using original break room

- Day 1: departs break room 12.15, at workstation 12.22
- Day 2: departs break room 12.15, at workstation 12.23
- Day 3: departs break room 12.15, at workstation 12.21

Employee B using new break room

- Day 1: departs break room 12.15, at workstation 12.19
- Day 2: departs break room 12.15, at workstation 12.21
- Day 3: departs break room 12.15, at workstation 12.20

What is the average time for Employee A and Employee B to return to their

If each shift consists of 20 employees, how much time is lost on average using the old break room compared to the new one?

25. An animal sanctuary relies completely on donations to do its work. This means they have a limited budget. As the number of cats in the sanctuary fluctuates, they need to know the average cost of

They would like to compare the cost of two different brands of cat food. Since the number of cats cared for by the sanctuary fluctuates, they need to know the average cost of

- Brand X food feeds 19 cats for seven days. It costs £168.
- Brand Y food feeds 22 cats for seven days. It costs £201.05.

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26. Three young athletes attend a meet where they will each compete in five events for the county team.
- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 points and 3rd place is awarded 2 points.
 - Every athlete achieving an average four points over all five events will be selected for the county team.

Which athlete/s is/are selected?

Position			
	Athlete X	Athlete Y	Athlete Z
100 m hurdles	1	3	4
High jump	5	2	1
Javelin	3	2	1
Long jump	4	4	2
400 m	4	1	2

27. You have been offered three different part-time jobs, but they have different costs. You have to pay for your bus fare yourself.
- Calculate the hourly rate per job.
 - Then, deduct your travel expenses to find out how much each job would be worth.

Job A: 15 hours a week over three shifts; £131.25 in total; return bus fare £2.40
 Job B: 12 hours a week over two shifts; £99 in total; return bus fare £2.40
 Job C: 16 hours a week over four shifts; £150.40 in total; return bus fare £2.40

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28. 15 adults study for an accounting qualification via an online college. Their raw

- What was the average score for the cohort?
- How many of the students in this cohort exceeded the average score?

Student	A	B	C	D	E	F	G	H	I	J
Score	20	21	18	20	19	15	25	28	15	13

29. The owners of three large shopping malls have to decide which one to close shopping habits.

From the data collected:

1. Calculate the total spend per visit for each mall.
2. Calculate the average spend per shop in each mall.
3. Calculate the average spend per HOUR in each mall.
4. Decide which mall to close down.

	Mall A	Mall B	Mall C
Average footfall per week	10,050	13,900	9,000
Average spend per customer	£68	£62	£90
Average time spent in mall per customer	1½ hours	2 hours	2½ hours
Number of shops in mall	68	73	78

30. An experienced childminder is planning to set up her business in a new area. In this area, parents will pay in this way. She collects some information. What is the average cost per hour for full day care?

- Parent A pays £71.25 for one child to have 15 hours of care before/after school.
- Parent B pays £158 for 40 hours of day care for one child.

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Revenue, costs and profit

31. A garment factory agrees an order with a customer to supply the following:

- 89 dresses @ £6.75 each
- 63 pairs of shorts @ £2.90 each
- 104 formal shirts @ £9 each

What is the total revenue from the order?

32. A potter supplies sets of besoms to a range of customers during the year:

- 16 sets of 'Autumn' @ £600 a set
- 27 sets of 'Spring' @ £790 a set
- 8 sets of 'Forest' @ £1,800 a set

What is the annual revenue for the potter?

33. The owner of a large garage specialising in MOT tests checks last month's records:

- 487 MOT tests carried out @ £70 each
- Received for repairs £16,489

What was the revenue for the garage last month?

34. At the end of the summer season the owner of a boat hire business based on figures for the different craft.

- 325 punt hires @ £65 each
- 403 swan pedalo hires @ £40 each
- 690 kayak hires @ £29 each
- 346 canoe hires @ £55 each

What was the total revenue for the season?

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35. The high season for a pony trekking centre is May to August. The centre needs to calculate its revenue during the season to stay in business for the whole year.
- 590 customers paid £50 each for a private trek.
 - 1,325 customers paid £35 each for a group trek.

Did the trekking centre achieve its revenue target?

36. A personal trainer is worried about cash flow in her business. Each month she needs to calculate her revenue to cover her business costs and living expenses.

In May she received payment for the following:

- 33 one-to-one sessions @ £32 each
- 21 group sessions @ £55 each

Did she achieve her target?

37. A garden centre owner hopes to increase revenue in December by selling seasonal decorations. She has achieved a revenue of £13,300.
- 340 wreaths sold @ £21.99 each
 - 676 poinsettia plants in decorative pots sold @ £5.99 each

Has this year's revenue exceeded last year's for the same products?

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38. 1. Calculate the total costs for the garment factory for last year.
Last year the factory used 800 rolls of fabric, 200 reels of thread and 15

Rent	£49,250
Machinery purchase	£21,000
Fabric per roll	£29
Insurance premium	£2,090
Thread per reel	£2.50
Packaging plastic per roll	£6.99

2. The total revenue for the year was £163,000. How much profit was made?

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39. 1. Calculate the total costs for the pottery studio for last year.
2. Revenue for the year was £47,200. How much profit was made?

Last year the pottery studio used 150 kg of clay, 48 litres of glaze and 4

Rent of studio	£13,300
Purchase of wheel and kiln	£7,400
Clay – 50 kg block	£82
Glaze – per litre	£10
Bubble wrap – per roll	£14.50
Advertising and website charges per annum	£795

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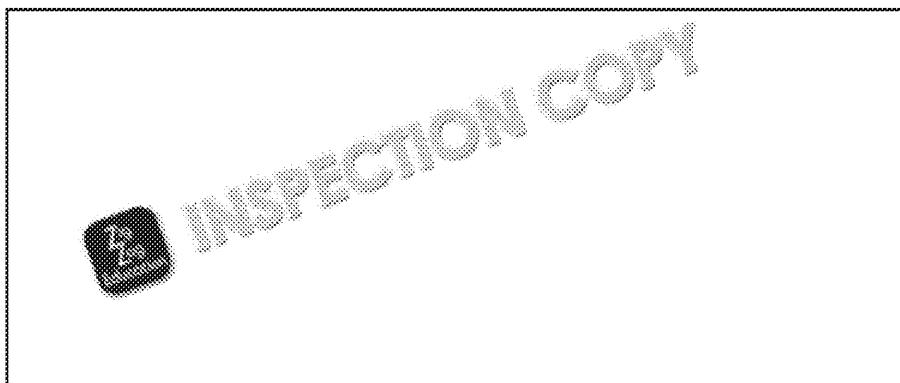
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40. 1. Calculate the total costs for the MOT garage for last year.
2. Revenue for the year was £347,800. How much profit was made?

Last year the garage fitted 870 new exhausts and used 1,700 litres of oil

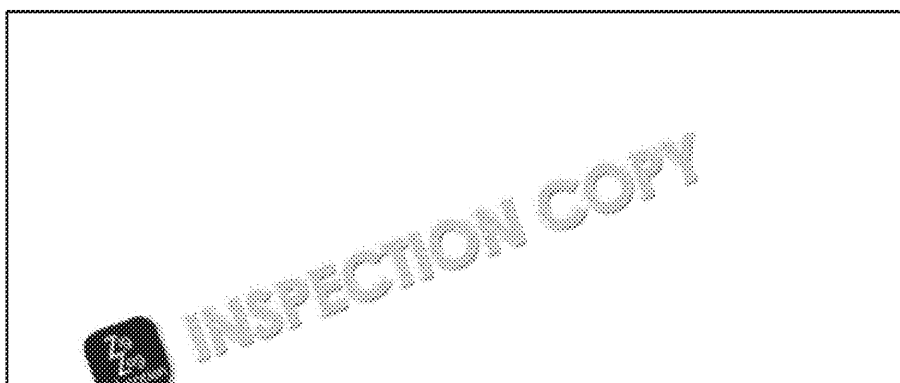
Rent of premises	£26,000
Purchase vehicle lift	£18,000
Engine oil per litre	£3.25
Replacement exhausts each	£159
Advertising per annum	£6,500



41. A pony trekking centre achieved a total revenue of £86,500. They paid for 12 sets of horseshoes, 38 sets of horseshoes, and they paid the instructor to work 95 hours

1. What were their total costs last year?
2. How much profit did they make?

Purchase ponies	£18,800
Tack	£9,100
Yard insurance	£2,950
Hay	£3.75 per bale
Feed	£14 per sack
Farrier (shoeing)	£87 per set
Self-employed instructor	£26 per hour



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42. A personal trainer achieved a revenue of £41,400 last year. She provided 2,716 one-to-one training sessions to clients.

1. What were her total costs?
2. Did she make a profit?

Van lease per annum	£3,900
Insurance per annum	£906
Equipment purchase	£2,200
Advertising per annum	£390
Average travel cost per client	£5
Leaflets / advice sheets per client	£0.90



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43. A part-time childminder received a revenue of £22,000 last year. He provided

1. Calculate his total costs using the following data.
2. Did he make a profit?

Insurance per annum	£907
Purchase play equipment	£1,650
Advertising per annum	£95
Food/heating cost per day	£15



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44. A self-employed dressmaker needs to make £15,000 profit a year from her business. She has a part-time job to make up her income. From the figures below, was this achieved last year?

Revenue overall for the year	£21,000
Sewing machine servicing cost	£128
Thread per reel	£2.50
Rolls of fabric (making wedding dresses)	£67 each
Advertising, phone costs and business cards	£380
Rent of studio per annum	£4,000

- 11 rolls of fabric were purchased
- 44 reels of thread were purchased

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45. An artist who specialises in lino cut printing sells his work through a specialist website. His work is very popular so he wants to see whether he made a profit > £1,000 last year.

- 76 prints were sold last year @ £44 each
- Each print cost £5.10 to produce
- Listing costs / commission for the website were/was £208
- Postage costs were £3.50 per print

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Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. (round your answers to two decimal places.)

- Revenue: £128,000
- Gross profit: £78,000
- Net profit: £56,000

47. Calculate gross profit margin and net profit margin for Year 1, for the sandwich bar.

At the end of Year 2, the council moved the bus stop that was adjacent to the sandwich bar. Calculate the gross profit margin and net profit margin to analyse the impact this had on the profit margin. (round your answers to two decimal places, where appropriate.)

Compare your answer with the figures for Year 4.

	Year 1	Year 2	Year 3	Year 4
Revenue	£57,500	£59,000	£57,000	£58,500
Gross profit	£31,200	£33,000	£28,000	£28,900
Net profit	£16,500	£18,200	£14,300	£18,000

48. The owner of a children's day nursery believes he is doing better in the second year than the first year. Use gross profit margin and net profit margin calculations (to two decimal places) to decide whether you agree.

	Year 1	Year 2
Revenue	£394,000.00	£427,000.00
Gross profit	£267,000.00	£298,000.00
Net profit	£94,000.00	£93,000.00

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49. Your friend is thinking about buying a local business – an independent stationery shop. You have been provided with the following information (to two decimal places) analyse this information and advise them whether or not to go ahead with the purchase.

	Year 1	Year 2	Year 3
Revenue	£192,000	£170,000	£154,000
Gross profit	£105,000	£97,000	£89,000
Net profit	£63,000	£58,000	£53,000

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50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the following information (Give your answers to two decimal places.)

- Revenue: £138,000
- Cost of sales: £62,500
- Expenses: £14,300

51. Using the following information, calculate gross profit margin (GPM) and net profit margin (NPM) (Give your answers to two decimal places.)

- Revenue: £143,000
- Expenses: £16,500
- Cost of sales: £34,000

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52. Use the following data to calculate gross profit margin (GPM) and net profit margin (NPM) (answers to two decimal places.)

- Cost of sales: £22,000
- Expenses: £18,500
- Revenue: £88,000

53. Last year a small holiday park with static caravans achieved a gross profit margin of 35%.

This year, the weather hasn't been good, and there are lots of cheap foreign holidays. The park owner asks you to check whether this year they have exceeded their target.

- Revenue: £91,000
- Cost of sales: £28,000
- Expenses and interest: £27,500

54. Last year the data for a flower shop showed the following figures:

- Revenue: £79,500
- Gross profit: £56,000
- Net profit: £26,250

The accountant advises it would be prudent to aim to increase both gross profit and net profit by at least 3% this year.

Here are this year's figures. Has the aim been achieved? Show your answer.

- Revenue: £82,500
- Cost of sales: £27,000
- Net profit: £29,000

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55. The owner of a private gym is worried about the increasing trend in exercising and the advice of her accountant, who has emailed to say that last year her gross profit margin was 35%.

Looking at the figures below for this year, is the gym doing better or worse than last year?

- Revenue: £1,400,000
- Gross profit: £730,000
- Net profit: £422,300



56. The owner of a small boutique hotel is concerned that a new competitor who markets itself as 'dog friendly' may be damaging his business. It opened just over a year ago. Below are the figures for the boutique hotel, calculate the gross profit margin and net profit margin and the impact of the competitor.

Last year:

- Revenue: £160,000
- Gross profit: £82,000
- Net profit: £51,000

This year:

- Revenue: £147,000
- Gross profit: £75,000
- Net profit: £54,000



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57. The owner of a small courier firm is considering retiring. In order to sell the business, he has been advised that both the gross profit margin and net profit margin need to be maintained for three years. Analyse his figures below (to two decimal places), and see whether he should retire.

	2017	2018	2019
Revenue £	78,000	84,500	87,300
Gross profit £	51,000	54,500	58,500
Net profit £	39,000	42,500	44,600

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58. Use the following information provided by your friend, who runs a pet boarding business, to calculate the gross profit margin and the net profit margin.

Revenue for the year	£28,700
Cost of sales	£8,400
Interest payments	£880
Advertising/website costs	£650
Vehicle costs	£4,700

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59. A small business specialising in accompanied mountain treks is struggling. Few mountain ranges are being sold. The owner is considering 'mothballing' the business if it improves. Look at the figures below. Calculate gross profit margin and net profit margin. Do you recommend?

	2016	2017	2018
Revenue £	59,000	67,000	53,000
Gross profit £	41,500	44,800	31,000
Net profit £	29,000	30,600	17,600



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60. The owner of an online fabric/sewing/knitting supplies business is thinking of closing the business. Analyse the last three years' figures and recommend whether or not to continue.

	Year 1	Year 2	Year 3
Revenue £	39,000	52,000	61,000
Gross profit £	28,500	37,000	47,000
Net profit £	22,000	31,050	39,000



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Average rate of return

61. Calculate the ARR for this machine. (Give your answer to two decimal places.)

- Purchase price of £95,000
- £35,000 profit generated over its five-year lifespan

62. A new forklift is purchased and is expected to be used for four years.

- The purchase price is £104,000.
- The machine generates profits of £16,000.

What is the ARR? (Give your answer to two decimal places.)

63. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£93,000
Profit	
Year 1	£20,000
Year 2	£15,500
Year 3	£13,250
Year 4	£11,000

64. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£150,000
Profit	
Year 1	£28,000
Year 2	£24,750
Year 3	£25,000
Year 4	£24,950
Year 5	£19,750

65. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£56,000
Profit	
Year 1	£19,250
Year 2	£19,100
Year 3	£18,800
Year 4	£17,820
Year 5	£16,900
Year 6	£16,000

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66. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£33,000
Profit	
Year 1	£7,800
Year 2	£8,000
Year 3	£7,900
Year 4	£7,500

67. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£107,000
Profit	
Year 1	£24,700
Year 2	£24,150
Year 3	£22,800
Year 4	£21,950

68. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£16,000
Profit	
Year 1	£4,000
Year 2	£3,800
Year 3	£3,900
Year 4	£3,700

69. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£54,800
Profit	
Year 1	£6,000
Year 2	£6,300
Year 3	£6,100
Year 4	£5,800
Year 5	£5,200

70. Which of these two vehicles would you choose, based on ARR? (Show your calculations)

- Vehicle A: purchase price £42,000; profit over five years £60,000
- Vehicle B: purchase price £33,000; profit over four years £42,000

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71. Which of these two machines would you choose, based on ARR? (Show your calculations)

- Machine 1: purchase price £15,000; profit over four years £17,400
- Machine 2: purchase price £19,500; profit over four years £26,000

72. Which of these two machines would you choose, based on ARR? (Show your calculations)

	X-300	X-350
Purchase price	£67,000	£79,800
Profit Year 1	£16,000	£16,400
Profit Year 2	£16,100	£17,000
Profit Year 3	£16,400	£17,800
Profit Year 4	£15,800	£16,300

73. A business has three options to replace existing machinery. Which of the three would you recommend, based on ARR? (Show your calculations to two decimal places.)

Purchase prices are: A £52,700, B £51,000, C £63,000.

Profit for each over five years is as follows:

	A	B	C
Year 1	£13,000	£11,000	£13,300
Year 2	£12,600	£10,900	£13,000
Year 3	£11,800	£10,500	£12,800
Year 4	£11,650	£10,100	£12,100
Year 5	£10,900	£9,800	£11,700

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74. A small dry cleaning business has decided to replace its cleaning equipment which would you recommend based on ARR? (Show your calculations to two decimal places.)

	Wash O Matic Purchase price £17,500	Speedy Wash Purchase price
Profit Year 1	£4,400	£5,400
Profit Year 2	£3,800	£4,700
Profit Year 3	£3,600	£3,800
Profit Year 4	£3,150	£2,800
Profit Year 5	£2,900	£2,500

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75. The owner of an orchard of traditional apples makes apple juice every year, margin. It is time to replace the pressing machine and there are two options recommend, based on ARR? (Show your calculations to two decimal places.)

	Super Press (price £8,700)	Traditional Apple Press (price £7,500)	
Profit Year 1	£4,300	£4,100	£4,300
Profit Year 2	£3,600	£3,800	£3,600
Profit Year 3	£3,200	£3,100	£3,200

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Cash flow forecasts, total costs, total revenue and net cash flow

76. Complete the gaps on the cash flow forecast.

Income	
Sales	£19,000
Total income	£
Expenditure	
Vehicle costs	£6,000
Postage/telephone	£500
Total expenditure	£
Net cash flow	£

77. Complete the gaps on the cash flow forecast.

Income	
Sales	£14,000
Royalties	£6,000
Total income	£
Expenditure	
Vehicle costs	£4,000
Stationery	£300
Telephone	£
Total expenditure	£4,450
Net cash flow	£

78. Complete the gaps on the cash flow forecast.

Income	
Sales	£
Total income	£94,700
Expenditure	
Studio rental	£7,400
Photographic paper	£1,000
Computer costs	£
Total expenditure	£10,000
Net cash flow	£

79. Complete the gaps on the cash flow forecast.

Income	
Sales	
Training fees	
Total income	
Expenditure	
Vehicle costs	
Office/admin	
Insurance	
Materials	
Total expenditure	
Net cash flow	

80. Complete the gaps on the cash flow forecast.

Cash inflows	
Revenue	
Total inflow	
Cash outflow	
Advertising	
Materials	
Telephone	
Total outflow	
Net cash flow	
Opening balance	
Closing balance	

81. Complete the gaps on the cash flow forecast.

Cash inflow	
Revenue	
Total inflow	
Cash outflow	
Advertising	
Materials	
Telephone	
Total outflow	
Net cash flow	
Opening balance	
Closing balance	

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82. Complete the cash flow details.

	April	May	June	
Total cash inflow	£19,000	£14,000	£16,000	£1
Total cash outflow	£9,800	£8,500	£9,000	£1
Net cash flow	£	£	£	£
Opening balance	£3,800	£	£	£
Closing balance	£	£	£	£

83. Complete the gaps in the cash flow.

	November	December	January	
Total cash inflow	£1,450,000	£1,407,000	£1,700,000	£1
Total cash outflow	£680,000	£650,000	£675,500	£7
Net cash flow	£	£	£	£
Opening balance	£630,000	£	£	£
Closing balance	£	£	£	£

84. Complete the gaps in the cash flow.

	August	September	October
Total cash inflow	£655.50	£670.00	£550.00
Total cash outflow	£204.00	£280.00	£150.00
Net cash flow	£	£	£
Opening balance	£400.00	£	£
Closing balance	£	£	£

85. Complete the gaps in the cash flow.

	Week 1	Week 2	Week 3
Total cash inflow	£155.40	£198.20	£167.80
Total cash outflow	£	£	£
Net cash flow	£135.00	£150.00	£139.00
Opening balance	£76.00	£	£
Closing balance	£	£	£

86. Complete the gaps in the cash flow.

	Week 5	Week 6	Week 7
Total cash inflow	£425.60	£320.50	£376.00
Total cash outflow	£	£470.00	£
Net cash flow	£350.00	£	£224.00
Opening balance	£145.00	£	£
Closing balance	£	£	£

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87. Complete the gaps in the cash flow.

	April £	May £	June £
Cash inflow			
Revenue	1,400	1,590	1,157
Loan	0	800	0
Total inflow			
Cash outflow			
Wages	508	508	508
Utilities	95	95	95
Advertising	175	0	0
Loan repayment	0	0	100
Total outflow			
Net cash flow			
Opening balance	900		
Closing balance			

88. Complete the gaps in the cash flow.

	March £
Cash inflow	
Revenue	2,290
Total inflow	
Cash outflow	
Insurance	65
Vehicle	840
Advertising	203
Total cash outflow	
Net cash flow	
Opening balance	-248
Closing balance	

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89. Complete the gaps in the cash flow.

	September £	October £
Cash inflow		
Revenue	12,300	8,890
Total inflow		
Cash outflow		
Rent	1,850	1,850
Materials	8,500	6,980
Utilities	340	340
Total outflow		
Net cash flow		
Opening balance	3,340	
Closing balance		

90. Complete the gaps in the cash flow.

	February £	March £	April £
Cash inflow			
Revenue	5,980	6,010	5,840
Rent	300	300	300
Loan	4,500	0	0
Total inflow			
Cash outflow			
Telephone	150	150	150
Wages	2,770	2,770	3,050
Courier costs	900	1,027	975
Loan	0	380	380
Materials	5,700	1,400	1,850
Total outflow			
Net cash flow			
Opening balance	-2,075		
Closing balance			

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Break-even calculations

91. Using the following figures, calculate the break-even point for this business.

- Fixed costs: £12,000
- Selling price per unit: £76
- Variable cost per unit: £17

92. Using the following figures, calculate the break-even point for this business.

- Fixed costs: £19,500
- Selling price per unit: £147
- Variable cost per unit: £53

93. Using the following figures, calculate the break-even point for this business.

- Selling price per unit: £850
- Variable cost per unit: £278
- Fixed costs: £49,000

94. Using the following figures, calculate the break-even point for this business.

- Variable cost per unit: £6,500
- Fixed costs: £102,000
- Selling price per unit: £13,499

95. Using the following information given to you by a local business, calculate the investment they are making into a new machine.

- Purchase of machine: £17,800
- Total cost for machine operator: £1,900
- Variable cost per unit produced: £41
- Selling price per unit: £142

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96. An engineering firm has purchased a new computerised milling machine for

The milling machine cost £8,000. Their new product sells at £19.99 per unit. The variable costs per unit total £6.

Calculate the break-even point for this contract.

97. A business rents new premises. The rent for the premises is £28,000. The rates/taxes and Insurance is £4,090.

The new premises will be used to make a new product. The variable costs per unit are £12. The selling price per unit is £25.

Calculate the break-even point for this new venture.

98. A dog groomer sets up her own business in her garden.

- A wooden garden office is purchased to do the grooming in, for £12,500. The office is installed to the office cost £1,400.
- The dog bath cost £1,800 and a specialist grooming table £900. Advertising costs come to £1,150 per annum.
- Each groom is carried out for £47, and the cost per dog of shampoo and grooming is £12.

How many dogs need to be groomed for the break-even point to be reached?

99. A keen amateur baker sets up a micro business selling wedding cakes. He has spent £1,650, sells each cake for £140, and has costed the ingredients and cake boxes at £20 each.

How many cakes does he need to sell in order to break even?

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100. A window cleaner sets up in her local area.

She buys a second-hand van for £3,900, ladders/buckets for £310, and calculates that fluid and fuel per customer will be £2.30. Prices vary per customer according to their homes, but, on average, customers will be paying £17 each.

How many customers does she need in order to break even?

101. A keen gardener buys a new greenhouse for £2,500, and hopes to cover the cost by selling hanging baskets filled with spring flowers.

Each basket plus pot and plants costs £17. The selling price is £29.99. How many baskets does he need to cover the cost of the greenhouse?

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Percentages and percentage change

- Calculate the percentage change in the revenue of a small factory between Year 1 and Year 2. (Give your answer to one decimal place.)
 - Year 1: £449,000
 - Year 2: £507,000
- Calculate the percentage change in the revenue of a small pottery business trading. (Give your answer to one decimal place.)
 - Year 3: £38,400
 - Year 4: £42,000
- Calculate the percentage change in the revenue of a small business over the past two years. (Give your answer to one decimal place.)
 - Previous year: £243,000
 - Current year: £298,000
- Calculate the percentage change in the revenue of a boat hire firm between 2018 and 2019. (Give your answer to one decimal place.)
 - 2018: £45,000
 - 2019: £53,000
- Calculate the percentage change in the revenue of a pony trekking centre over the past two years. (Give your answer to one decimal place.)
 - Year 1: £67,000
 - Year 2: £79,000
- A personal trainer hopes to have achieved an increase in revenue of at least 10% this year. Did she achieve this between 2018 and 2019?
 - 2018: £36,000
 - 2019: £39,000
- The owners of a garden centre have set themselves a target of achieving an 'inflation plus 12%'. Inflation is 2% – did the owners achieve their aim between 2018 and 2019?
 - Year 1: £143,500
 - Year 2: £170,900
- Three branches of a high-street shoe shop chain are set a target of increasing their revenue by 15% this August, compared to last August. They choose different methods of promotion.
 - Branch A offers a discount on a pair of trainers when bought with a full-price pair. Aug Y1: £92,000; Aug Y2: £114,000
 - Branch B offers free polish and shoe labels with every pair of school shoes. Aug Y1: £86,000; Aug Y2: £88,400
 - Branch C offers 10% off the price of all school shoes purchased in August. Aug Y1: £87,000; Aug Y2: £101,000

Did any of the three branches achieve the 15% increase? (Give your answer to one decimal place.)
- Three convenience stores dominate the market in the Eastshire area. The value of their sales for the last year is given below. Calculate (to two decimal places) the market share of each store from their total sales.

Discount Plus: £786,000
 Easyshop: £841,000
 Freshshop: £1,200,000

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10. Flexigym is a recent entrant to the private gym market. The market is valued and its share is measured at 9%. What is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is that the market share of the private gym market has increased to 12%. The value of the private gym market is still £4 million. What is Flexigym's new turnover?

11. A business decides to stop making products where **either** sales have fallen for two years or the product has a market share < 8%.

Which product(s) will the business stop making?

Product	Last year's sales revenue	This year's sales revenue
A	£700,000	£602,000
B	£362,000	£371,000
C	£460,000	£415,000
D	£851,000	£811,000

12. Five businesses dominate a particular market. The value of the market is £900,000. Each business's revenue is given in the table below. Calculate (to two decimal places) the market share of each business.

A	£190,000
B	£95,000
C	£124,000
D	£255,000
E	£178,000
Others	£58,000

13. A beauty therapist reviews her business over the last year. She would like to know what the total revenue was generated by each treatment. (Give your answers to two decimal places.)

Total revenue for the year: £33,000

Revenue from each treatment:

- Manicure/pedicure: £17,000
- Brow reshape: £5,000
- Lash tint: £4,000
- Facial: £7,000

14. An independent high-street jewellery shop owner would like to know what the total revenue was generated by each product range. (Give your answers to two decimal places.)

Total revenue for the year: £95,450

Revenue from products:

- Engagement rings: £19,750
- Wedding rings: £7,800
- Replacement watch batteries: £1,920
- Replacement watch straps: £525
- Earrings: £15,455
- Necklaces: £31,000
- Wristwatches: £10,000

15. A self-employed painter and decorator is thinking about how best to advertise. He would like to focus on the tasks that contributed more than 20% of last year's total revenue.

Which tasks should be mentioned in the advert?

Last year's revenue: £47,500

Revenue from different tasks:

- Wallpapering: £14,000
- Interior painting: £22,850
- Exterior painting: £7,200
- Staining woodwork: £3,450

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Averages

16. A carpet showroom monitors its sales revenue over the past six months, and the six-month period the year before.

	Feb	Mar	Apr	May
Last year	£8,720	£8,400	£11,090	£13,700
This year	£7,000	£3,000	£9,450	£9,900

- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for March?
- What is the percentage change in revenue for May?

17. An independent travel agency records the number of its holidays and the average price per holiday over the past two years.

Based on the information in the table, which holiday would you recommend?

Year	Holiday	Number of customers	Total revenue
2019	Peru Trek	29	£84,000
2019	Greek Islands	560	£410,000
2019	Spanish Villa	910	£725,000
2018	Peru Trek	15	£78,000
2018	Greek Islands	620	£343,000
2018	Spanish Villa	862	£598,000

18. A newly established bed and breakfast business owner decides to use competitor businesses as a guide when calculating the average amount charged by similar businesses. The room rates charged by similar businesses are:

- £65
- £79
- £84
- £67
- £60

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products are tested for breaking and have been recorded as lasting the following lengths of time during the tests:

- What is the average length of time taken for a product to break?
- How many of these products have a breaking time that is higher than the average?

Product	Time before breaking
A	6 minutes 20 seconds
B	7 minutes 10 seconds
C	5 minutes 5 seconds
D	8 minutes 15 seconds
E	4 minutes 10 seconds

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20. A guesthouse owner in the South West is writing a brochure to encourage guests to include the average temperature in June, as he gets fewer bookings in this month.

From the figures provided of the average June temperature for the last six years, the guest house owner should include in his brochure.

Year	Temperature (degrees)
Year 1	19
Year 2	18
Year 3	23
Year 4	18
Year 5	22
Year 6	23

21. A garden centre manager is concerned about the amount of space allocated to compost. The space could be used for other products with a high profit margin, but he is disappointed that customers don't buy compost.

The manager decides to calculate the average number of bags sold each month over the last four years. He will then stock the average quantity this year. Round your answer up to the nearest whole number.

Bags of compost sold				
Month	Year 1	Year 2	Year 3	Year 4
March	48	56	55	49
April	76	72	68	70
May	98	105	116	110
June	160	137	178	160
July	138	137	142	138
August	101	98	125	128
September	87	73	98	82

22. Managers at a call centre monitor the number of calls taken by staff working over a five day week.

Calculate each member of staff's HOURLY number of calls taken over the past week, rounded to whole numbers of calls.

Staff whose average falls below six calls per hour over the week will be offered help. How many members of staff will receive help?

Staff	Mon	Tue	Wed	Thur	Fri
A	38	45	47	30	34
B	40	45	43	46	42
C	40	42	38	34	32
D	33	38	42	39	28
E	40	34	40	48	43
F	37	41	48	32	31
G	35	34	43	36	47

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23. The owner of a small independent bookshop has started to sell online in addition to her shop. She monitors her sales over the past working week (six days).

- Calculate the average daily spend per customer in the shop and online.
- Calculate the average weekly spend per customer in the shop and online.

	Mon	Tue	Wed	Thur
Shop customers	9	15	10	10
Total spend	£127	£406	£594	£82
Online customers	15	28	7	17
Total spend	£425	£905	£527	£303

24. A factory manager aims to save some time in the work place by moving the production line. They all take breaks at the same time – the start and finish of the shift. The manager is interested to see how much time could be saved getting to work.

Two members of staff will be timed.

Employee A using original break room

- Day 1: departs break room 12.15, at workstation 12.22
- Day 2: departs break room 12.15, at workstation 12.23
- Day 3: departs break room 12.15, at workstation 12.21

Employee B using new break room

- Day 1: departs break room 12.15, at workstation 12.19
- Day 2: departs break room 12.15, at workstation 12.21
- Day 3: departs break room 12.15, at workstation 12.20

What is the average time for Employee A and Employee B to return to their workstation?

If each shift consists of 20 employees, how much time is lost on average using the original break room compared to the new one?

25. An animal sanctuary relies completely on donations to do its work. This means they have a limited budget.

They would like to compare the cost of two different brands of cat food. Since the number of cats cared for by the sanctuary fluctuates, they need to know the average cost of feeding the cats.

- Brand X food feeds 19 cats for seven days. It costs £168.
- Brand Y food feeds 22 cats for seven days. It costs £201.05.

26. Three young athletes attend a meet where they will each compete in five events for the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 points, 3rd place is awarded 2 points.
- Every athlete achieving an overall 20 or more points over all five events will be selected for the county team.

Which athlete/athletes will be selected?

	Position		
	Athlete X	Athlete Y	Athlete Z
100 m hurdles	1	3	4
High jump	5	2	1
Javelin	3	2	1
Long jump	1	4	2
400 m	4	1	2

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27. You have been offered three different part-time jobs, but they have different bus fares. You have to pay for your bus fare yourself.

- Calculate the hourly rate per job.
- Then, deduct your travel expenses to find out how much each job would be worth.

Job A: 15 hours a week over three shifts; £131.25 in total; return bus fare £2.40

Job B: 12 hours a week over two shifts; £99 in total; return bus fare £2.40

Job C: 16 hours a week over four shifts; £150.40 in total; return bus fare £2.40

28. 15 adults study for an accounting qualification via an online college. Their raw scores are as follows:

- What was the average score for the cohort?
- How many of the students in this cohort exceeded the average score?

Student	A	B	C	D	E	F	G	H	I	J
Score	20	21	18	17	19	15	25	28	15	13

29. The owners of three large shopping malls have to decide which one to close down to save costs.

From the data collected:

1. Calculate the total spend per visit for each mall.
2. Calculate the average spend per shop in each mall.
3. Calculate the average spend per HOUR in each mall.
4. Decide which mall to close down.

	Mall A	Mall B	Mall C
Average footfall per week	10,050	13,900	9,000
Average spend per customer	£68	£62	£90
Average time spent in mall per customer	1½ hours	2 hours	2½ hours
Number of shops in mall	68	73	78

30. An experienced childminder intends to set up her business in a new area. In this area, parents will pay in this area, she collects some information. What is the average cost of care before/after school, and for full day care?

- Parent A pays £71.25 for one child to have 15 hours of care before/after school.
- Parent B pays £158 for 40 hours of day care for one child.

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Revenue, costs and profit

31. A garment factory agrees an order with a customer to supply the following:
- 89 dresses @ £6.75 each
 - 63 pairs of shorts @ £2.90 each
 - 104 formal shirts @ £9 each

What is the total revenue from the order?

32. A potter supplies sets of bespoke tiles to a range of customers during the year
- 16 sets of 'Autumn' @ £800 a set
 - 27 sets of 'Woodland' @ £790 a set
 - 8 sets of 'Forest' @ £1,800 a set

What is the annual revenue for the potter?

33. The owner of a large garage specialising in MOT tests checks last month's revenue
- 487 MOT tests carried out @ £70 each
 - Revenue for repairs £16,489

What was the revenue for the garage last month?

34. At the end of the summer season the owner of a boat hire business based on figures for the different craft.
- 325 punt hires @ £65 each
 - 403 swan pedalo hires @ £40 each
 - 690 kayak hires @ £29 each
 - 346 canoe hires @ £55 each

What was the total hire revenue for the season?

35. The high season for a pony trekking centre is May to August. The centre needs revenue during the season to stay in business for the whole year.
- 590 customers paid £50 each for a private trek.
 - 1,325 customers paid £35 each for a group trek.

Did the trekking centre achieve its revenue target?

36. A personal trainer is worried about cash flow in her business. Each month she needs revenue of £1,900 to cover her business costs and living expenses.

In May she received payment for the following:

- 33 one-to-one sessions @ £32 each
- 21 group sessions @ £55 each

Did she achieve her target?

37. A garden centre owner wants to increase revenue in December by selling seasonal plants
- 345 poinsettias sold @ £21.99 each
 - 676 pansy plants in decorative pots sold @ £5.99 each

Has this year's revenue exceeded last year's for the same products?

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38. 1. Calculate the total costs for the garment factory for last year.
Last year the factory used 800 rolls of fabric, 200 reels of thread and 15

Rent	£49,250
Machinery purchase	£21,000
Fabric per roll	£29
Insurance premium	£2,090
Thread per reel	£2.50
Packaging plastic per roll	£6.99

2. The total revenue for the year was £163,000. How much profit was made?

39. 1. Calculate the total costs for the pottery studio for last year.
2. Revenue for the year was £47,200. How much profit was made?

Last year the pottery studio used 150 kg of clay, 48 litres of glaze and 4

Rent of studio	£13,300
Purchase of wheel and kiln	£7,400
Clay – 50 kg block	£82
Glaze – per litre	£10
Bubble wrap – per roll	£14.50
Advertising and website charges per annum	£795

40. 1. Calculate the total costs for the MOT garage for last year.
2. Revenue for the year was £347,800. How much profit was made?

Last year the garage fitted 870 new exhausts and used 1,700 litres of oil

Rent of premises	£26,000
Purchase vehicle lift	£18,000
Engine oil per litre	£3.25
Replacement exhausts each	£159
Advertising per annum	£6,500

41. A pony trekking centre achieved a total revenue of £86,500. They paid for 1
feed and 38 sets of horseshoes, and they paid the instructor to work 95 hou

1. What were their total costs last year?
2. How much profit did they make?

Purchase ponies	£18,800
Tack	£9,100
Yard insurance	£2,550
Hay	£3.75 per bale
Feed	£14 per sack
Farrier (shoes)	£87 per set
Employed instructor	£26 per hour

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42. A personal trainer achieved a revenue of £41,400 last year. She provided 2,716 one-to-one training sessions to clients.

1. What were her total costs?
2. Did she make a profit?

Van lease per annum	£3,900
Insurance per annum	£906
Equipment purchase	£2,200
Advertising per annum	£390
Average travel cost per client	£5
Leaflets / advice sheets per client	£0.90

43. A part-time childminder received a revenue of £12,000 last year. He provided the following data.

1. Calculate his total costs using the following data.
2. Did he make a profit?

Insurance per annum	£907
Purchase play equipment	£1,650
Advertising per annum	£95
Food/heating cost per day	£15

44. A self-employed dressmaker needs to make £15,000 profit a year from her job to make up her income. From the figures below, was this achieved last year?

Revenue overall for the year	£21,000
Sewing machine servicing cost	£128
Thread per reel	£2.50
Rolls of fabric (making wedding dresses)	£67 each
Advertising, phone costs and business cards	£380
Rent of studio per annum	£4,000

- 11 rolls of fabric were purchased
- 44 reels of thread were purchased

45. An artist who specialises in lino cut printing sells his work through a specialist gallery. The gallery is very popular so he wants to see whether he made a profit > £1,000 last year.

- 76 prints were sold last year @ £44 each
- Each print cost £5.10 to produce
- Listing costs / commission for the website were/ was £208
- Postage costs were £3.50 per print

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Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. (Give your answers to two decimal places.)

- Revenue: £128,000
- Gross profit: £78,000
- Net profit: £56,000

47. Calculate gross profit margin and net profit margin for Year 1, for the sandwich bar.

At the end of Year 2 the local council moved the bus stop that was adjacent to the sandwich bar. Calculate the gross profit margin and net profit margin to analyse the impact this had on the profit margin. Give your answers to two decimal places, where appropriate.

Compare your answer with the figures for Year 4.

	Year 1	Year 2	Year 3	Year 4
Revenue	£55,000	£59,000	£57,000	£58,500
Gross profit	£31,200	£33,000	£28,000	£28,900
Net profit	£16,500	£18,200	£14,300	£18,000

48. The owner of a children's day nursery believes he is doing better in the second year than the first year. Use gross profit margin and net profit margin calculations (to two decimal places) to decide whether you agree.

	Year 1	Year 2
Revenue	£394,000.00	£427,000.00
Gross profit	£267,000.00	£298,000.00
Net profit	£84,000.00	£93,000.00

49. Your friend is thinking about buying a local business – an independent stationery shop. Use the following data to calculate gross profit margin (GPM) and net profit margin (NPM) (to two decimal places) and analyse the business. Provide your answers and advise them whether or not to go ahead with the purchase.

	Year 1	Year 2	Year 3
Revenue	£192,000	£170,000	£154,000
Gross profit	£105,000	£97,000	£89,000
Net profit	£63,000	£58,000	£53,000

50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the following data. (Give your answers to two decimal places.)

- Revenue: £138,000
- Cost of sales: £62,500
- Expenses: £14,300

51. Using the following information, calculate gross profit margin (GPM) and net profit margin (NPM) (to two decimal places.)

- Revenue: £143,000
- Expenses: £16,500
- Cost of sales: £34,000

52. Use the following data to calculate gross profit margin (GPM) and net profit margin (NPM) (to two decimal places.)

- Cost of sales: £22,000
- Expenses: £18,500
- Revenue: £88,000

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53. Last year a small holiday park with static caravans achieved a gross profit margin of 44%.

This year, the weather hasn't been good, and there are lots of cheap foreign holidays. The park owner asks you to check whether this year they have exceeded last year's gross profit margin.

- Revenue: £91,000
- Cost of sales: £28,000
- Expenses and interest: £27,500

54. Last year the data for a flower shop showed the following figures:

- Revenue: £79,500
- Gross profit: £56,000
- Net profit: £26,250

The accountant advises it would be prudent to aim to increase both gross profit and net profit by at least 3% this year.

Here are this year's figures. Has the increase been achieved? Show your answer.

- Revenue: £82,500
- Cost of sales: £24,500
- Net profit: £29,000

55. The owner of a private gym is worried about the increasing trend in exercising at home. She has taken the advice of her accountant, who has emailed to say that last year her gross profit margin was 35%.

Looking at the figures below for this year, is the gym doing better or worse than last year?

- Revenue: £1,400,000
- Gross profit: £730,000
- Net profit: £422,300

56. The owner of a small boutique hotel is concerned that a new competitor with itself as 'dog friendly' may be damaging his business. It opened just over a year ago. Using the figures below for the boutique hotel, calculate the gross profit margin and net profit margin. What is the impact of the competitor?

Last year:

- Revenue: £160,000
- Gross profit: £82,000
- Net profit: £51,000

This year:

- Revenue: £147,000
- Gross profit: £75,000
- Net profit: £54,000

57. The owner of a small courier firm is considering retiring. In order to sell the business, he has been advised that both the gross profit margin and net profit margin need to be maintained for three years. Analyse his figures below (round to two decimal places), and see whether he can meet the challenge.

	2017	2018	2019
Revenue (£)	85,500	84,500	87,300
Gross profit (£)	51,000	54,500	58,500
Net profit (£)	39,000	42,500	44,600

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58. Use the following information provided by your friend, who runs a pet board, to calculate the gross profit margin and the net profit margin.

Revenue for the year	£28,700
Cost of sales	£8,400
Interest payments	£880
Advertising/website costs	£650
Vehicle costs	£4,700

59. A small business specialising in accompanied mountain treks is struggling. For the last year, no mountain ranges are being sold. The owner is considering 'mothballing' the business until it improves. Look at the figures below. Calculate gross profit margin and net profit margin. Do you recommend?

	2016	2017	2018
Revenue £	50,000	67,000	53,000
Gross profit £	15,000	44,800	31,000
Net profit £	29,000	30,600	17,600

60. The owner of an online fabric/sewing/knitting supplies business is thinking of closing the business down. Analyse the last three years' figures and recommend whether or not to continue.

	Year 1	Year 2	Year 3
Revenue £	39,000	52,000	61,000
Gross profit £	28,500	37,000	47,000
Net profit £	22,000	31,050	39,000

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Average rate of return

61. Calculate the ARR for this machine. (Give your answer to two decimal places.)

- Purchase price of £95,000
- £35,000 profit generated over its five-year lifespan

62. A new forklift is purchased and is expected to be used for four years.

- The purchase price is £104,000.
- The machine generates profits of £82,000.

What is the ARR? (Give your answer to two decimal places.)

63. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£93,000
Profit	
Year 1	£20,000
Year 2	£15,500
Year 3	£13,250
Year 4	£11,000

64. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£150,000
Profit	
Year 1	£28,000
Year 2	£24,750
Year 3	£25,000
Year 4	£24,950
Year 5	£19,750

65. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£56,000
Profit	
Year 1	£19,250
Year 2	£19,100
Year 3	£18,800
Year 4	£17,820
Year 5	£16,900
Year 6	£16,000

66. Calculate ARR from the following information. (Give your answer to two decimal places.)

Purchase price	£30,000
Profit	
Year 1	£7,800
Year 2	£8,000
Year 3	£7,900
Year 4	£7,500

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67. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£107,000
Profit	
Year 1	£24,700
Year 2	£24,150
Year 3	£24,000
Year 4	£22,800
Year 5	£21,950

68. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£16,000
Profit	
Year 1	£4,000
Year 2	£3,500
Year 3	£3,900
Year 4	£3,700

69. Calculate ARR from the following information. (Give your answer to two decimal places)

Purchase price	£54,800
Profit	
Year 1	£6,000
Year 2	£6,300
Year 3	£6,100
Year 4	£5,800
Year 5	£5,200

70. Which of these two vehicles would you choose, based on ARR? (Show your calculations)

- Vehicle A: purchase price £42,000; profit over five years £60,000
- Vehicle B: purchase price £33,000; profit over four years £42,000

71. Which of these two machines would you choose, based on ARR? (Show your calculations)

- Machine 1: purchase price £15,000; profit over four years £17,400
- Machine 2: purchase price £19,500; profit over four years £26,000

72. Which of these two machines would you choose, based on ARR? (Show your calculations)

	X-300	X-350
Purchase price	£67,000	£74,000
Profit Year 1	£15,000	£16,400
Profit Year 2	£16,100	£17,000
Profit Year 3	£16,400	£17,800
Profit Year 4	£15,800	£16,300

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73. A business has three options to replace existing machinery. Which of the three should they recommend, based on ARR? (Show your calculations to two decimal places.)

Purchase prices are: A £52,700, B £51,000, C £63,000.

Profit for each over five years is as follows:

	A	B	C
Year 1	£13,000	£11,000	£13,300
Year 2	£12,600	£10,900	£13,000
Year 3	£11,800	£10,500	£12,800
Year 4	£11,650	£10,100	£12,100
Year 5	£10,900	£9,800	£11,700

74. A small dry cleaning business has decided to replace its cleaning equipment. Which would you recommend, based on ARR? (Show your calculations to two decimal places.)

	Wash O Matic Purchase price £17,500	Speedy Wash Purchase price £19,000
Profit Year 1	£4,400	£5,400
Profit Year 2	£3,800	£4,700
Profit Year 3	£3,600	£3,800
Profit Year 4	£3,150	£2,800
Profit Year 5	£2,900	£2,500

75. The owner of an orchard of traditional apples makes apple juice every year, with a 10% profit margin. It is time to replace the pressing machine and there are two options. Which should they recommend, based on ARR? (Show your calculations to two decimal places.)

	Super Press (price £8,700)	Traditional Apple Press (price £7,500)	
Profit Year 1	£4,300	£4,100	£4,100
Profit Year 2	£3,600	£3,800	£3,800
Profit Year 3	£3,200	£3,100	£3,100

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Break-even calculations

91. Using the following figures, calculate the break-even point for this business.
- Fixed costs: £12,000
 - Selling price per unit: £76
 - Variable cost per unit: £17
92. Using the following figures, calculate the break-even point for this business.
- Fixed costs: £19,500
 - Selling price per unit: £147
 - Variable costs per unit: £53
93. Using the following figures, calculate the break-even point for this business.
- Selling price per unit: £850
 - Variable cost per unit: £278
 - Fixed costs: £15,000
94. Using the following figures, calculate the break-even point for this business.
- Variable cost per unit: £6,500
 - Fixed costs: £102,000
 - Selling price per unit: £13,499
95. Using the following information provided to you by a local business, calculate the investment they are making into a new machine.
- Purchase of machine: £17,800
 - Training course for machine operator: £1,900
 - Variable cost per unit produced: £41
 - Selling price per unit: £142
96. An engineering firm has purchased a new computerised milling machine for £8,000. Their new product sells at £19.99 per unit. The milling machine cost £8,000. Their new product sells at £19.99 per unit. The variable costs per unit total £6.
- Calculate the break-even point for this contract.
97. A business rents new premises. The rent for the year is £28,000. The rates/utilities and Insurance is £4,090.
- The new premises will be used to make a new product. The variable costs per unit and the selling price per unit is £34.99
- Calculate the break-even point for this new venture.
98. A dog groomer sets up her own business in her garden.
- A wooden garden office is purchased to do the grooming in, for £12,500 including the office cost £1,400.
 - The bath cost £1,800 and a specialist grooming table £900. Advertising costs come to £1,150 per annum.
 - Each groom is carried out for £47, and the cost per dog of shampoo and grooming is £10.
- How many dogs need to be groomed for the break-even point to be reached?
99. A keen amateur baker sets up a micro business supplying wedding cakes. He has fixed costs of £1,650, sells each cake for £140, and has costed the ingredients and cake box at £20 per cake.
- How many cakes does he need to sell in order to break even?

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100. A window cleaner sets up in her local area.

She buys a second-hand van for £3,900, ladders/buckets for £310, and calculates that fluid and fuel per customer will be £2.30. Prices vary per customer according to their homes, but, on average, customers will be paying £17 each.

How many customers does she need in order to break even?

101. A keen gardener buys a new greenhouse for £2,900, and hopes to cover the cost by selling hanging baskets filled with spring flowers.

Each basket plus compost and plants costs £17. The selling price is £29.99. How many baskets does he need to sell to cover the cost of the greenhouse?



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Answers – Set A

1. $22,000/307,000 \times 100 = 7.2\%$ increase
2. $7,400/34,500 \times 100 = 21.4\%$ increase
3. $37,000/272,000 \times 100 = 13.6\%$ increase
4. $16,000/62,000 \times 100 = 20.5\%$ increase
5. $3,000/78,000 \times 100 = 3.8\%$ increase
6. $9,000/32,000 \times 100 = 28.1\%$
Yes, she achieved the increase of at least 15%
7. $22,400/162,500 \times 100 = 13.8\%$ increase, therefore, they have not achieved the 14% increase.
8. Branch A: $100/92,000 \times 100 = 13.59\%$
Branch B: $100/86,000 \times 100 = 13.72\%$
Branch C: $14,600/87,000 \times 100 = 16.78\%$
Branch C achieved the 15% increase.
9. Discount Plus: $800,000/3,000,000 \times 100 = 26.67\%$
Easysshop: $765,000/3,000,000 \times 100 = 25.50\%$
Freshshop: $921,000/3,000,000 \times 100 = 30.70\%$
10. 7% of £4 million is £280,000
 $376,000/4,000,000 \times 100 = 9.4\%$
11. A. $40,000/700,000 \times 100 = 5.71\%$ fall
Market share: $660,000/7,000,000 \times 100 = 9.43\%$
B. $50,000/362,000 \times 100 = 13.81\%$ fall
Market share: $312,000/4,000,000 \times 100 = 7.80\%$
C. $54,000/460,000 \times 100 = 11.74\%$ fall
Market share: $406,000/8,000,000 \times 100 = 5.08\%$
D. $76,000/851,000 \times 100 = 8.93\%$ fall
Market share: $775,000/12,000,000 \times 100 = 6.45\%$

Stop making product B due to fall in sales > 12% and also < 8% market share. Also stop making products C and D due to market share < 8%
12. Revenue/value of market $\times 100$
A. $270,000/900,000 \times 100 = 30.00\%$
B. $87,000/900,000 \times 100 = 9.67\%$
C. $110,000/900,000 \times 100 = 12.78\%$
D. $240,000/900,000 \times 100 = 26.67\%$
E. $170,000/900,000 \times 100 = 18.9\%$

Others: $18,000/900,000 \times 100 = 2.00\%$
13. Manicure/pedicure: $14,000/27,000 \times 100 = 51.85\%$
Brow reshape: $3,000/27,000 \times 100 = 11.11\%$
Lash tint: $3,500/27,000 \times 100 = 12.96\%$
Facial: $6,500/27,000 \times 100 = 24.07\%$

14. Engagement ring: 10,000
Wedding rings: 6,000
Watch batteries: 1,000
Watch straps: 3,000
Earrings: 17,555
Necklaces: 29,000
Wristwatches: 10,000
15. Wallpapering: 1,000
Interior painting: 1,000
Exterior painting: 1,000
Staining woodwork: 1,000

The advert should include interior painting
16. Average last year: 5,000/9
Average this year: 4,200/5.5
March = 5,000/9
July = 4,200/5.5
17. Average spend:
2019 Peru Trek £60
Spanish Villa £70
2018 Peru Trek £60
Spanish Villa £70

Stop offering the average spend.
18. $£350/5 = £70$
19. 29 minutes in total
 $60 \times 0.8 = 48$ seconds
Average breaking time

Three of the products are higher than the average
20. $114/6 = 19$ degrees
- 21.

Mar	20
Apr	28
May	44
Jun	63
Jul	57
Aug	45
Sept	32

22. A. $195/35 = 5.57$
B. $211/35 = 6.03$
C. $205/35 = 5.86$
D. $192/35 = 5.49$
E. $206/35 = 5.89$
F. $200/35 = 5.71$
G. $203/35 = 5.80$

Staff member D

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23. SHOP
 Mon $120/8 = £15$
 Tue $396/12 = £33$
 Wed $544/17 = £32$
 Thur $96/12 = £8$
 Fri $120/15 = £8$
 Sat $594/27 = £22$

 Weekly average shop spend = $1,870/91 = £20.55$

 ONLINE
 Mon $420/14 = £30$
 Tue $920/23 = £40$
 Wed $570/10 = £57$
 Thur $344/8 = £43$
 Fri $363/11 = £33$
 Sat $276/6 = £46$

 Weekly average online spend = $2,893/72 = £40.18$
24. A. 18 minutes
 B. 9/5 minutes

 $20 \times 6 = 120$ minutes or 2 hours spent moving back from break per day
 $20 \times 3 = 60$ minutes or 1 hour spent moving back from break per day
25. Brand X = $16 \text{ cats} \times 7 \text{ days} = 112 \text{ meals}$. $168/112 = £1.50$
 Brand Y = $19 \text{ cats} \times 7 \text{ days} = 133 \text{ meals}$. $192.85/133 = £1.45$
26. Athlete X = $4 + 2 + 4 + 4 + 0 = 14/5 = 2.8$
 Athlete Y = $6 + 0 + 6 + 2 + 6 = 20/5 = 4$
 Athlete Z = $0 + 6 + 0 + 6 + 4 = 16/5 = 3.2$

 Athlete Y is selected.
27. Job A: $£127.50/15 = £8.50$ per hour
 $£127.50 - (3 \times £2.60) = £127.50 - £7.80 = £119.70$ actual income

 Job B: $£105/12 = £8.75$ per hour
 $£105 - (2 \times £3) = £105 - £6 = £99$ actual income

 Job C: $£144.80/16 = £9.05$ per hour
 $£144.80 - (4 \times £3.50) = £144.80 - £14 = £130.80$ actual income
28. Total marks = $294/15 = 19.6$
 Seven marks exceeded the average score.
29. Mall A
 $9,700 \times £62 = £601,400$
 Per shop = $601,400/60 = £10,023.33$
 Spend per hour = $9,700 \times 1.5 = 14,550$ hours in mall
 $601,400/14,550 = £41.33$

- Mall B
 $12,400 \times £59 = £731,600$
 Per shop = $731,600/60 = £12,193.33$
 Spend per hour = $12,400 \times 1.5 = 18,600$ hours in mall
 $731,600/18,600 = £39.33$
- Mall C
 $8,900 \times £42 = £373,800$
 Per shop = $373,800/60 = £6,230$
 Spend per hour = $8,900 \times 1.5 = 13,350$ hours in mall
 $373,800/13,350 = £27.99$
- Mall C to close down
30. Care before/after
 Day care: $152/40 = £3.80$
31. $85 \times £7 = £595$
 $57 \times £3 = 171$
 $75 \times £8 = 600$
 Total revenue = $£1,366$
32. $14 \times £875 = £12,250$
 $23 \times £750 = £17,250$
 $6 \times £1,560 = £9,360$
 Total revenue = $£38,860$
33. $314 \times 70 = £21,980$
 $+ £12,300 = £34,280$
34. $370 \times £60 = £22,200$
 $440 \times £42 = £18,480$
 $673 \times £30 = £20,190$
 $315 \times £50 = £15,750$
 Total revenue = $£76,620$
35. $619 \times £55 = £34,045$
 $1,406 \times £39 = £54,834$
 Total is $£88,879$
36. $37 \times 30 = £1,110$
 $16 \times £60 = £960$
 Total is $£2,070$
37. $314 \times £19.99 = £6,276.86$
 $620 \times £4.99 = £3,095.80$
 Total is $£9,372.66$
 has not been exceeded.
38. Split into fixed and variable costs
 Fixed costs $48,000$
 Variable costs 800
 $150 \times £6 = 900$
 Total costs $66,800$
 $172,000 - 66,800 = 105,200$

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39. Fixed costs $12,000 + 7,000 + 720 = 19,720$
 Variable costs $1,000/50 = 20 \times £70 = 1,400$ clay
 $42 \times £9 = 378$
 $2 \times £12 = 24$
 Variable costs = 1,802
 Total costs $19,720 + 1,802 = 21,522$
 $43,500 - 21,522 = 21,978$ profit

40. Fixed costs = $22,000 + 16,000 + 6,000 = 44,000$
 Variable costs
 $1,400 \times £3 = 4,200$
 $900 \times £140 = 126,000$
 $£4,200 + £126,000 = 130,200$

Total costs = $44,000 + 130,200$
 $322,800 - 174,200 = £148,600$ profit

41. Fixed costs $17,000 + 1,200 + 2,850 = 28,150$

Variable costs
 $80 \times £12 = 960$
 $23 \times £80 = 1,840$
 $70 \times £22 = 1,540$

Total variable costs 8,240

Total costs = $28,150 + 8,240 = 36,390$
 $61,550 - 36,390 = £25,160$ profit

42. Fixed costs $3,600 + 820 + 1,700 + 360 = 6,480$

Variable costs $2,316 \times £4.50 = 10,422$
 $2,316 \times 0.80 = 1852.80$
 Total variable costs = 12,274.80

Total costs = $6,480 + 12,274.80 = 18,754.80$
 $29,800 - 18,754.80 = £11,045.20$ profit

Yes, she made a profit.

43. Fixed costs $870 + 1,480 + 80 = 2,430$
 Variable costs $£10 \times 500$ days = 5,000
 Total cost $2,430 + 5,000 = 7,430$
 $18,000 - 7,430 = £10,570$ profit

Yes, he made a profit.

44. Fixed costs $120 + 325 + 3,600 = 4,045$

Variable costs
 $8 \times £62 = 496$
 $37 \times £2 = 74$

Total variable costs = 570
 Total costs $4,045 + 570 = 4,615$

Profit = $19,000 - 4,615 = £14,385$

No, the dressmaker needs an additional income.

45. Sales revenue 83

Fixed costs £173

Variable costs £3
 $£3 \times 83 = £249$

Total costs 173

Profit $3,486 - 82$

Yes, last year's profit

46. GPM $82,000/11$
 NPM $53,500/11$

47. Y1 GPM $34,500/$
 NPM $18,500/59$

Y2 GPM $35,840/$
 NPM $19,250/64$

Y3 GPM $31,720/$
 NPM $15,300/61$

Y4 GPM $30,780/$
 NPM $17,750/57$

Drop in profit margin
 However, NPM is

48. Y1 GPM $258,000/$
 Y1 NPM $89,000/$
 Y2 GPM $283,000/$
 Y2 NPM $91,000/$

No, he is not doing
 figures look better
 true picture.

49. Y1 GPM $112,000/$
 Y1 NPM $67,000/$
 Y2 GPM $103,000/$
 Y2 NPM $61,000/$
 Y3 GPM $98,000/$
 Y3 NPM $59,000/$

Costs are being
 go ahead. Some

50. Calculate gross profit
 GPM $75,000/17$
 Calculate net profit
 NPM $57,500/17$

51. Calculate gross profit
 GPM $55,800/67$
 Calculate net profit
 NPM $43,200/67$

52. Calculate gross profit
 GPM $68,400/93$
 Calculate net profit
 NPM $51,650/93$

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53. Gross profit $83,200 - 24,200 = 59,000$

$$\text{GPM } 59,000/83,200 \times 100 = 70.91\%$$

$$\text{Net profit } 59,000 - 24,380 = 34,620$$

$$\text{NPM } 34,620/83,200 \times 100 = 41.61\%$$

No, this year hasn't exceeded last year's profit margins.

54. Last year

$$\text{GPM } 8,000/76,000 \times 100 = 76.32\%$$

$$\text{NPM } 29,200/76,000 \times 100 = 38.42\%$$

This year

$$\text{Gross profit} = 79,500 - 20,500 = 59,000$$

$$\text{GPM } 59,000/79,500 \times 100 = 74.21\%$$

$$\text{NPM } 32,400/79,500 \times 100 = 40.75\%$$

No, the increase has not been achieved.

55. GPM $8,000/15,600,750 \times 100 = 51.23\%$

$$\text{NPM } 54,000/15,600,750 \times 100 = 33.94\%$$

The gym is doing slightly worse this year, but in the current conditions this might be seen as encouraging.

56. Year 1 GPM $76,000/143,000 \times 100 = 53.15\%$

$$\text{NPM } 49,000/143,000 \times 100 = 34.27\%$$

This year

$$\text{GPM } 79,000/152,000 \times 100 = 51.97\%$$

$$\text{NPM } 51,000/152,000 \times 100 = 33.55\%$$

There is a small decrease, but, given a direct competitor, this may indicate the hotel isn't going to be significantly affected.

57. 2017

$$\text{GPM } 48,000/76,000 \times 100 = 63.16\%$$

$$\text{NPM } 37,000/76,000 \times 100 = 48.68\%$$

2018

$$\text{GPM } 50,500/81,000 \times 100 = 62.35\%$$

$$\text{NPM } 39,200/81,000 \times 100 = 48.40\%$$

2019

$$\text{GPM } 51,750/83,500 \times 100 = 61.98\%$$

$$\text{NPM } 42,000/83,500 \times 100 = 50.30\%$$

Although the raw figures seem to show improvement, the analysis shows that this is not the case.

58. Calculate $68,260 - 50,000 = 18,200$

$$\text{GPM } 18,200/26,000 \times 100 = 70\%$$

$$\text{Calculate } 18,200 - (720 + 600 + 4,080) = 18,200 - 5,400 = 12,800$$

$$\text{NPM } 12,800/26,000 \times 100 = 49.23\%$$

59. 2016

$$\text{GPM } 43,000/64,000$$

$$\text{NPM } 31,000/64,000$$

2017

$$\text{GPM } 48,000/68,000$$

$$\text{NPM } 34,500/68,000$$

2018

$$\text{GPM } 23,000/48,000$$

$$\text{NPM } 15,750/48,000$$

60. Year 1

$$\text{GPM } 28,000/39,000$$

$$\text{NPM } 21,000/39,000$$

Year 2

$$\text{GPM } 35,500/48,000$$

$$\text{NPM } 28,500/48,000$$

Year 3

$$\text{GPM } 45,500/57,000$$

$$\text{NPM } 37,800/57,000$$

The costs of running have increased, but the increase in sales has more than made up for it.

61. $32,000/5 = £6,400$

$$£6,400/87,000 \times 100 = 7.36\%$$

62. $76,000/4 = 19,000$

$$19,000/62,500 \times 100 = 30.4\%$$

63. Total profit = £66,050

$$66,050/4 = 16,512.50$$

$$16,512.50/86,000 \times 100 = 19.2\%$$

64. Total profit = £128,450

$$128,450/5 = 25,690$$

$$25,690/172,000 \times 100 = 14.9\%$$

65. Total profit = £106,500

$$106,500/6 = 17,750$$

$$17,750/47,000 \times 100 = 37.8\%$$

66. Total profit = £30,700

$$30,700/4 = 7,675$$

$$7,675/27,000 \times 100 = 28.4\%$$

67. Total profit = £112,450

$$112,450/6 = 18,741.67$$

$$18,741.67/93,750 \times 100 = 20.0\%$$

68. Total profit is £26,500

$$26,500/4 = 6,625$$

$$6,625/13,750 \times 100 = 48.2\%$$

69. Total profit = £37,400

$$37,400/5 = 7,480$$

$$7,480/42,000 \times 100 = 17.8\%$$

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70. A. $42,000/5 = 8,400$
 $8,400/33,000 \times 100 = 25.45\%$
- B. $35,000/4 = 8,750$
 $8,750/26,000 \times 100 = 33.65\%$

Choose Machine B.

71. 1. $18,400/4 = 4,600$
 $4,600/13,000 \times 100 = 35.38\%$
2. $27,000/4 = 6,750$
 $6,750/17,000 \times 100 = 39.71\%$

Choose Machine 2.

72. X-300 profit = 66,800
 $66,800/4 = 16,700$
 $16,700/62,000 \times 100 = 26.94\%$

X-350 profit = 70,980
 $70,980/304,745 \times 100 = 23.35\%$

Choose X-300.

73. A. total profit = 59,650
 $59,650/5 = 11,930$
 $11,930/52,000 \times 100 = 22.94\%$
- B. total profit = 56,150
 $56,150/5 = 11,230$
 $11,230/47,000 \times 100 = 23.89\%$
- C. total profit = 59,160
 $59,160/5 = 11,832$
 $11,832/56,000 \times 100 = 21.13\%$

B is the best option.

74. Wash O Matic
 $18,860/5 = 3,772$
 $3,772/16,900 \times 100 = 22.32\%$

Speedy Wash
 $18,610/5 = 3,722$
 $3,722/18,400 \times 100 = 20.23\%$

Based on ARR, choose Speedy Wash. Discussion point – similar ARR so may consider other features of machines to make choice.

75. Super Press $11,300/3 = 3,766.66$
 $3,766.66/7,300 \times 100 = 51.73\%$
- Traditional Apple Press $11,900/3 = 3,966.67$
 $3,966.67/7,000 \times 100 = 56.67\%$

Modern Press $12,400/3 = 4,133.33$
 $4,133.33/7,500 \times 100 = 55.11\%$

Choose the Traditional Apple Press.

76. Total income 17,250
 Total expenditure 5,120
 Net cash flow 12,130

77. Total income 19,800
 Telephone 460
 Net cash flow 16,340

78. Sales 83,200
 Computer costs 12,500
 Net cash flow 70,700

79. Total income 19,800
 Materials 11,350
 Net cash flow 15,450

80. Inflow 6,500
 Telephone 230
 Net cash flow 5,270
 Closing balance 5,270

81.

Inflow
Telephone
Total outflow
Net cash flow
Opening balance
Closing balance

82.

Net cash flow
Opening balance
Closing balance

83.

Total cash inflow	1
Total cash outflow	2
Net cash flow	3
Opening balance	6
Closing balance	5

84.

Net cash flow
Opening balance
Closing balance

85.

Total outflow
Opening balance
Closing balance

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86.

	Wk 5	Wk 6	Wk 7
Total outflow	109.42	--	501.18
Net cash flow	--	-139.74	--
Opening balance	--	454.69	314.95
Closing balance	454.69	314.95	220.00

87.

	Apr	May	Jun
Total inflow	1,200	2,250	1,385
Total outflow	660	520	620
Net cash flow	540	1,730	765
Opening balance	--	1,381	3,111
Closing balance	1,381	3,111	3,876

88. Total inflow 1,720
Total cash outflow 1,120
Net cash flow 600
Closing balance 442

89.

	Sept	Oct
Total inflow	10,678	6,072
Total outflow	10,060	8,049
Net cash flow	618	-1,977
Opening balance	--	824
Closing balance	--	-1,153

90.

	Feb	Mar	Apr	May
Total inflow	8,270	5,340	5,202	5,517
Total outflow	8,950	4,747	4,115	3,865
Net cash flow	-680	530	1,087	1,652
Opening balance	--	-2,755	-2,225	-1,138
Closing balance	-2,755	-2,225	-1,138	514

91. $9,500 / (87 - 13) = 129$ units to break even

92. $16,000 / (120 - 40) = 200$ units to break even

93. $32,070 / (1,399 - 1,000) = 107$ units to break even

94. $75,000 / (12,000 - 10,000) = 3,750$ units to break even

95. $17,200 / (159 - 30) = 124$ units to break even

96. $6,000 / (16.99 - 4.99) = 462$ units to break even

97. $29,929 / (27.50 - 25.00) = 2,138$ units to break even

98. Fixed costs 7,500
 $12,035 / (38 - 2) = 330$ grooms to break even

99. $1,000 / (160 - 24) = 7$ units to break even

100. Break even 3,800
 272 customers to break even

101. $2,000 / (24.99 - 19.99) = 100$ units to break even

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Answers – Set B

1. $58,000/449,000 \times 100 = 12.9\%$ increase
2. $3,600/38,400 \times 100 = 9.4\%$ increase
3. $55,000/243,000 \times 100 = 22.6\%$ increase
4. $8,000/45,000 \times 100 = 17.8\%$ increase
5. $12,000/67,000 \times 100 = 17.9\%$ increase
6. $3,000/36,000 \times 100 = 8.3\%$
No, she did not achieve the increase of at least 11%.
7. $27,400/143,500 \times 100 = 19\%$
Yes, the owners have met their aim of 14% minimum increase.
8. Branch A: $1,000/92,000 \times 100 = 23.91\%$
Branch B: $2,400/86,000 \times 100 = 2.79\%$
Branch C: $17,000/87,000 \times 100 = 19.54\%$

Branch A and Branch C achieved the 15% increase.
9. Discount Plus: $786,000/3,000,000 \times 100 = 26.20\%$
Easyshop: $841,000/3,000,000 \times 100 = 28.03\%$
Freshshop: $1,200,000/3,000,000 \times 100 = 40.00\%$
10. 9% of £4 million is £360,000
 $385,000/4,000,000 \times 100 = 9.6\%$
11. $98,000/700,000 \times 100 = 14\%$ fall
Market share $602,000/7,000,000 \times 100 = 8.60\%$
 - A. $32,000/362,000 \times 100 = 8.84\%$ fall
Market share $330,000/4,000,000 \times 100 = 8.25\%$
 - B. $45,000/460,000 \times 100 = 9.78\%$ fall
Market share $415,000/8,000,000 \times 100 = 5.19\%$
 - C. $40,000/851,000 \times 100 = 4.70\%$ fall
Market share $811,000/12,000,000 \times 100 = 6.76\%$

Stop making product A due to fall in sales > 12%.
Stop making products C and D due to market share < 8%.
12. Revenue/value of market $\times 100$
 - A. $190,000/900,000 \times 100 = 21.11\%$
 - B. $95,000/900,000 \times 100 = 10.56\%$
 - C. $125,000/900,000 \times 100 = 13.78\%$
 - D. $255,000/900,000 \times 100 = 28.33\%$
 - E. $178,000/900,000 \times 100 = 19.78\%$

Others $58,000/900,000 \times 100 = 6.44\%$
13. Manicure/pedicure: $17,000/33,000 \times 100 = 51.51\%$
Brow reshape: $5,000/33,000 \times 100 = 15.15\%$
Lash tint: $4,000/33,000 \times 100 = 12.12\%$
Facial: $7,000/33,000 \times 100 = 21.21\%$

14. Engagement ring: 10,000
Wedding rings: 10,000
Watch batteries: 10,000
Watch straps: 5,000
Earrings: 15,455
Necklaces: 31,000
Wristwatches: 10,000
15. Wallpapering: 10,000
Interior painting: 10,000
Exterior painting: 10,000
Staining woodwork: 10,000

The advert should mention the cost of painting.
16. Average last year: 5,400/8,000
Average this year: 4,290/5,600

March = 5,400/8,000
July = 4,290/5,600
17. Average spend:
2019 Peru Trek £750
Spanish Villa £750
2018 Peru Trek £650
Spanish Villa £650

Stop offering the Peru Trek in spend (despite the fact it is more popular) compared to income from both Greek Islands.
18. $£355/5 = £71$
19. $31 \text{ minutes} / 5 = 6.2$
 $60 \times 0.2 = 12 \text{ seconds}$

Average breaking time is 12 seconds.

Three of the products have a breaking time higher than the average.
20. $123/6 = 20.5$ degrees

21.

Mar	20
Apr	28
May	42
Jun	63
Jul	55
Aug	45
Sept	34

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22. A. $194/35 = 5.5 = 6$
 B. $217/35 = 6.2 = 6$
 C. $186/35 = 5.3 = 5$
 D. $171/35 = 4.9 = 5$
 E. $205/35 = 5.9 = 6$
 F. $192/35 = 5.5 = 6$
 G. $200/35 = 5.7 = 6$

Staff members C and D will receive help.

23. SHOP

Mon $£127/9 = £14.11$
 Tue $£406/15 = £27.07$
 Wed $£594/10 = £59.40$
 Thur $£82/10 = £8.20$
 Fri $£170/18 = £9.44$
 Sat $£603/35 = £17.23$

Weekly average shop spend = $£1,982/6 = £330.33$

ONLINE

Mon $£42/15 = £2.80$
 Tue $£905/28 = £32.32$
 Wed $£527/7 = £75.29$
 Thur $£303/17 = £17.82$
 Fri $£370/15 = £24.67$
 Sat $£306/8 = £38.25$

Weekly average online spend = $£2,836/6 = £472.67$

24. A. $21/3 = 7$ minutes per day
 B. $15/3 = 5$ minutes per day

$20 \times 7 = 140$ minutes or 2 hours 20 minutes spent moving back from break per day
 $20 \times 5 = 100$ minutes or 1 hour 40 minutes spent moving back from break per day

Time lost on average using original break room compared to the new one per shift of 20 employees:
 $140 \text{ minutes} - 100 \text{ minutes} = 40 \text{ minutes}$

25. Brand X = $19 \text{ cats} \times 7 \text{ days} = 133 \text{ meals}$. $168/133 = £1.26$
 Brand Y = $22 \text{ cats} \times 7 \text{ days} = 154 \text{ meals}$. $201.05/154 = £1.31$

26. Athlete X = $6 + 0 + 2 + 6 + 0 = 14/5 = 2.8$
 Athlete Y = $2 + 4 + 4 + 0 + 6 = 16/5 = 3.2$
 Athlete Z = $0 + 6 + 6 + 4 + 4 = 20/5 = 4$

Athlete Z is selected.

27. Job A: $15 \times 3.75 = £56.25$ per hour
 $131.25 - (2.5 \times 3) = 131.25 - 7.5 = £123.75$ actual income

Job B: $99.00/12 = 8.25$ per hour
 $99 - (2.4 \times 2) = 99 - 4.8 = £94.20$ actual income

Job C: $150.40/16 = 9.40$ per hour
 $150.40 - (2.75 \times 4) = 150.40 - 11.00 = £139.40$ actual income

28. Total marks = 29
 Seven students

29. Mall A
 $10,050 \times 68 = £683,400$
 Per shop = $683,400/10 = £68,340$
 Spend per hour in mall. $683,400/10 = £68,340$

Mall B
 $13,900 \times 62 = £861,800$
 Per shop $861,800/10 = £86,180$
 Spend per hour in mall. $861,800/10 = £86,180$

Mall C
 $9,050 \times 90 = £814,500$
 Per shop $814,500/10 = £81,450$
 Spend per hour in mall. $814,500/10 = £81,450$

Mall B to close

30. Care before/after hour
 Day care: $£158/\text{hour}$

31. $89 \times £6.75 = £600.75$
 $63 \times £2.90 = £182.70$
 $104 \times £9 = £936$

Total revenue = $£600.75 + £182.70 + £936 = £1,719.45$

32. $16 \times £800 = £12,800$
 $27 \times £790 = £21,330$
 $8 \times £1,800 = £14,400$

Total revenue = $£12,800 + £21,330 + £14,400 = £48,530$

33. $487 \times £70 = £34,090$
 $£34,090 + £16,400 = £50,490$

34. $325 \times £65 = £21,125$
 $403 \times £40 = £16,120$
 $690 \times £29 = £20,010$
 $346 \times £55 = £19,030$

Total revenue = $£21,125 + £16,120 + £20,010 + £19,030 = £76,285$

35. $590 \times £50 = £29,500$
 $1,325 \times £35 = £46,875$

Total is $£29,500 + £46,875 = £76,375$

36. $33 \times £32 = £1,056$
 $21 \times £55 = £1,155$

Total $£1,056 + £1,155 = £2,211$. Yes

37. $340 \times £21.99 = £7,476.60$
 $676 \times £5.99 = £4,049.24$

Total is $£7,476.60 + £4,049.24 = £11,525.84$
 not been exceeded

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38. Split into fixed and variable costs:
 Fixed costs $\pounds 49,250 + \pounds 21,000 + \pounds 2,090 = \pounds 72,340$
 Variable costs $\pounds 29 \times 800 = \pounds 23,200$, $\pounds 2.50 \times 200 = \pounds 500$, $\pounds 6.99 \times 150 = \pounds 1,048.50$
 $\pounds 23,200 + \pounds 500 + \pounds 1,048.50 = \pounds 24,748.50$
 Total costs $\pounds 72,340 + \pounds 24,748.50 = \pounds 97,088.50$
 $\pounds 163,000 - \pounds 97,088.50 = \pounds 65,911.50$ profit
39. Fixed costs $\pounds 13,300 + \pounds 7,400 + \pounds 795 = \pounds 21,495$
 Variable costs
 $\pounds 82 \times 150 = \pounds 12,300$
 $\pounds 10 \times 48 = \pounds 480$
 $\pounds 14.50 \times 4 = \pounds 58$
 Total variable costs = $\pounds 12,838$
 Total costs $\pounds 12,838 + \pounds 21,495 = \pounds 34,333$
 Profit $\pounds 47,300 - \pounds 34,333 = \pounds 12,967$
40. Fixed costs $\pounds 17,000 + \pounds 18,000 + \pounds 6,500 = \pounds 50,500$
 Variable costs
 $\pounds 3.25 \times 1,700 = \pounds 5,525$
 $\pounds 159 \times 870 = \pounds 138,330$
 Total costs $\pounds 50,500 + \pounds 5,525 + \pounds 138,330 = \pounds 194,355$
 Profit $\pounds 347,800 - \pounds 194,355 = \pounds 153,445$
41. Fixed costs $\pounds 18,800.00 + \pounds 9,100.00 + \pounds 2,950.00 = \pounds 30,850.00$
 Variable costs
 $\pounds 3.75 \times 1,850 = \pounds 6,937.50$
 $\pounds 14 \times 93 = \pounds 1,302.00$
 $\pounds 87 \times 38 = \pounds 3,306.00$
 $\pounds 26 \times 95 = \pounds 2,470.00$
 Total costs $\pounds 30,850 + \pounds 6,937.50 + \pounds 1,302 + \pounds 3,306 + \pounds 2,470 = \pounds 44,865.50$
 Profit $\pounds 86,500 - \pounds 44,865.50 = \pounds 41,634.50$
42. Fixed costs $\pounds 3,900 + \pounds 906 + \pounds 2,200 + \pounds 390 = \pounds 7,396$
 Variable costs
 $\pounds 5 \times 2,716 = \pounds 13,580$
 $\pounds 0.90 \times 2,716 = \pounds 2,444.40$
 Total costs $\pounds 7,396 + \pounds 13,580 + \pounds 2,444.40 = \pounds 23,420.40$
 Profit $\pounds 41,400 - \pounds 23,420.40 = \pounds 17,979.60$
 Yes, she made a profit.
43. Fixed costs $\pounds 1,507 + \pounds 1,650 + \pounds 95 = \pounds 2,652$
 Variable costs $\pounds 15 \times 570 = \pounds 8,550$
 Total costs $\pounds 2,652 + \pounds 8,550 = \pounds 11,202$
 Profit $\pounds 22,000 - \pounds 11,202 = \pounds 10,798$
 Yes, he made a profit.

44. Fixed costs $\pounds 128$
 Variable costs
 $\pounds 11 \times \pounds 67 = \pounds 737$
 $\pounds 44 \times \pounds 2.50 = \pounds 110$
 Total costs $\pounds 4,500 + \pounds 737 + \pounds 110 = \pounds 5,347$
 Profit = $\pounds 21,000 - \pounds 5,347 = \pounds 15,653$
 The dressmaker made a profit.
45. Revenue $76 \times \pounds 4 = \pounds 304$
 Fixed costs $\pounds 208$
 Variable costs
 $76 \times \pounds 5.10 = \pounds 387.60$
 $76 \times \pounds 3.5 = \pounds 266$
 Total costs $\pounds 208 + \pounds 387.60 + \pounds 266 = \pounds 861.60$
 Profit $\pounds 3,344 - \pounds 861.60 = \pounds 2,482.40$
 Yes, the artist's made a profit.
46. GPM $\pounds 78,000 / \pounds 150 = \pounds 520$
 NPM $\pounds 56,000 / \pounds 150 = \pounds 373.33$
47. Year 1
 GPM $\pounds 31,200 / \pounds 150 = \pounds 208$
 NPM $\pounds 16,500 / \pounds 150 = \pounds 110$
 Year 2
 GPM $\pounds 33,000 / \pounds 150 = \pounds 220$
 NPM $\pounds 18,200 / \pounds 150 = \pounds 121.33$
 Year 3
 GPM $\pounds 28,000 / \pounds 150 = \pounds 186.67$
 NPM $\pounds 14,300 / \pounds 150 = \pounds 95.33$
 Year 4
 GPM $\pounds 28,900 / \pounds 150 = \pounds 192.67$
 NPM $\pounds 18,000 / \pounds 150 = \pounds 120$
 Impact of move in profit margins are improving.
48. Y1
 GPM $\pounds 267,000 / \pounds 150 = \pounds 1,780$
 NPM $\pounds 84,000 / \pounds 150 = \pounds 560$
 Y2
 GPM $\pounds 298,000 / \pounds 150 = \pounds 1,986.67$
 NPM $\pounds 93,000 / \pounds 150 = \pounds 620$
 The profit margin for Y1.
49. Y1 GPM $\pounds 105,000 / \pounds 150 = \pounds 700$
 Y1 NPM $\pounds 63,000 / \pounds 150 = \pounds 420$
 Y2 GPM $\pounds 97,000 / \pounds 150 = \pounds 646.67$
 Y2 NPM $\pounds 58,000 / \pounds 150 = \pounds 386.67$
 Y3 GPM $\pounds 89,000 / \pounds 150 = \pounds 593.33$
 Y3 NPM $\pounds 53,000 / \pounds 150 = \pounds 353.33$
 There was a dip in profit margins slightly better – and then market

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50. Gross profit £138,000 – £62,500 = £75,500
 Net profit £75,500 – £14,300 = £61,200
 GPM £75,500/£138,000 × 100 = 54.71%
 NPM £61,200/£138,000 × 100 = 44.35%

51. Gross profit £143,000 – £34,000 = £109,000
 Net profit £109,000 – £16,500 = £92,500
 GPM £109,000/£143,000 × 100 = 76.22%
 NPM £92,500/£143,000 × 100 = 64.69%

52. Gross profit £88,000 – £22,000 = £66,000
 Net profit £66,000 – £18,500 = £47,500
 GPM £66,000/£88,000 × 100 = 75%
 NPM £47,500/£88,000 × 100 = 53.98%

53. Gross profit £91,000 – £26,000 = £65,000
 Net profit £65,000 – £29,500 = £35,500
 GPM £65,000/£91,000 × 100 = 69.23%
 NPM £35,500/£91,000 × 100 = 39.01%

This year's profit margins are lower than the previous year's.

54. Last year
 GPM £56,000/£79,500 × 100 = 70.44
 NPM £26,250/£79,500 × 100 = 33.02%

This year
 Gross profit = £82,500 – £24,500 = £58,000
 GPM £58,000/£82,500 × 100 = 70.30%
 NPM £29,000/£82,500 × 100 = 35.15%

Difference in profit: 35.15% – 33.02% = 2.13%

The NPM has increased, but not by the 3% hoped for.

55. GPM £730,000/£1,400,000 × 100 = 52.14%
 NPM £422,300/£1,400,000 × 100 = 30.16%

The gym is doing worse than last year as there's a drop of almost 5% in the NPM despite GPM being very similar to last year.

56. Last year
 GPM £82,000/£160,000 × 100 = 51.25%
 NPM £51,000/£160,000 × 100 = 31.88%

This year
 GPM £75,000/£147,000 × 100 = 51.02%
 NPM £54,000/£147,000 × 100 = 36.73%

Revenue has been reduced, which may be due to the dog-friendly competitor. However, NPM has increased, with GPM remaining stable. The hotel is, therefore, running more efficiently, despite the reduction in revenue. The owner of the boutique hotel could review these figures to help future planning.

57. 2017
 GPM £51,000/£100,000 = 51%
 NPM £39,000/£100,000 = 39%

2018
 GPM £54,500/£100,000 = 54.5%
 NPM £42,500/£100,000 = 42.5%

2019
 GPM £58,500/£100,000 = 58.5%
 NPM £44,600/£100,000 = 44.6%

There is a small increase in GPM and NPM in 2018 and 2019. If this can be maintained, there is no going concern.

58. Gross profit = £20,300
 Net profit = £20,300 – £6,200 = £14,100
 GPM £20,300/£100,000 = 20.3%
 NPM £14,100/£100,000 = 14.1%

59. 2016
 GPM £41,500/£100,000 = 41.5%
 NPM £29,000/£100,000 = 29%

2017
 GPM £44,800/£100,000 = 44.8%
 NPM £30,600/£100,000 = 30.6%

2018
 GPM £31,000/£100,000 = 31%
 NPM £17,600/£100,000 = 17.6%

Recommend more licences are available and can take treks.

60. Year 1
 GPM £28,500/£100,000 = 28.5%
 NPM £22,000/£100,000 = 22%

Year 2
 GPM £37,000/£100,000 = 37%
 NPM £31,050/£100,000 = 31.05%

Year 3
 GPM £47,000/£100,000 = 47%
 NPM £39,000/£100,000 = 39%

The business is in a good position but opening a branch will increase costs. It is only online only. The business will be permanent.

61. £35,000/5 = £7,000
 £7,000/£95,000 = 7.37%

62. £82,000/4 = £20,500
 £20,500/£104,000 = 19.71%

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63. Total profit = £59,750
 $\frac{£59,750}{4} = £14,937.50$
 $\frac{£14,937.50}{£93,000} \times 100 = 16.06\%$

64. Total profit = £122,450
 $\frac{£122,450}{5} = £24,490$
 $\frac{£24,490}{£150,000} \times 100 = 16.33\%$

65. Total profit = £107,870
 $\frac{£107,870}{6} = £17,978.33$
 $\frac{£17,978.33}{£56,000} \times 100 = 32.10\%$

66. Total profit = £31,200
 $\frac{£31,200}{4} = £7,800$
 $\frac{£7,800}{£33,000} \times 100 = 23.64\%$

67. Total profit = £117,600
 $\frac{£117,600}{6} = £19,600$
 $\frac{£19,600}{£107,000} \times 100 = 18.32\%$

68. Total profit = £15,400
 $\frac{£15,400}{4} = £3,850$
 $\frac{£3,850}{£16,000} \times 100 = 24.06\%$

69. Total profit = £29,400
 $\frac{£29,400}{5} = £5,880$
 $\frac{£5,880}{£54,800} = 10.73\%$

70. A. $\frac{£60,000}{5} = £12,000$
 $\frac{£12,000}{£42,000} \times 100 = 28.57\%$

B. $\frac{£42,000}{4} = £10,500$
 $\frac{£10,500}{£33,000} \times 100 = 31.82\%$

Choose Machine B.

71. 1. $\frac{£17,400}{4} = £4,350$
 $\frac{£4,350}{£15,000} \times 100 = 29\%$

2. $\frac{£26,000}{4} = £6,500$
 $\frac{£6,500}{£19,500} = 33.33\%$

Choose Machine 2.

72. X-300 profit = £63,300
 $\frac{£63,300}{4} = £15,825$
 $\frac{£15,825}{£67,000} \times 100 = 23.62\%$

X-350 profit = £67,500
 $\frac{£67,500}{4} = £16,875$
 $\frac{£16,875}{£79,800} \times 100 = 21.15\%$

Choose X-300.

73. A. total profit = £11,990
 $\frac{£11,990}{5} = £2,398$
 $\frac{£2,398}{£52,700} \times 100 = 22.75\%$

B. total profit = £52,300
 $\frac{£52,300}{5} = £10,460$
 $\frac{£10,460}{£51,000} \times 100 = 20.51\%$

C. total profit = £62,900
 $\frac{£62,900}{5} = £12,580$
 $\frac{£12,580}{£63,000} \times 100 = 19.97\%$

Recommend option A.

74. Wash O Matic
 Total profit = £17,850
 $\frac{£17,850}{5} = £3,570$
 $\frac{£3,570}{£17,500} = 20.34\%$

Speedy Wash
 Total profit = £19,200
 $\frac{£19,200}{5} = £3,840$
 $\frac{£3,840}{£19,750} = 19.44\%$

Recommend Wash

75. Super Press
 Total profit = £11,100
 $\frac{£11,100}{3} = £3,700$
 $\frac{£3,700}{£8,700} = 42.53\%$

Traditional Appl
 Total profit = £11,000
 $\frac{£11,000}{3} = £3,666.67$
 $\frac{£3,666.67}{£7,500} = 48.89\%$

Modern Press
 Total profit = £11,300
 $\frac{£11,300}{3} = £3,766.67$
 $\frac{£3,766.67}{£7,000} = 53.81\%$

Recommend the

76. Total income £100,000
 Total expenditure £80,000
 Net cash flow £20,000

77. Total income £200,000
 Telephone £150,000
 Net cash flow £50,000

78. Sales £94,700
 Computer costs £10,000
 Net cash flow £84,700

79. Total income £100,000
 Materials £14,400
 Net cash flow £85,600

80. Total inflow £7,300
 Telephone £225
 Net cash flow £7,075
 Closing balance

81.

Total inflow
Telephone
Total outflow
Net cash flow
Opening balance
Closing balance

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82.

	April	May	June	July
NCF	9,200	5,500	7,000	5,000
Opening balance	--	13,000	18,500	25,500
Closing balance	13,000	18,500	25,500	30,500

83.

	Nov	Dec	Jan	Feb
NCF	750,000	757,000	1,024,500	770,000
Opening balance	--	1,380,000	2,137,000	3,161,500
Closing balance	1,380,000	2,137,000	3,161,500	3,931,500

84.

	Aug	Sep	Oct
Net cash flow	451.50	390.00	400.00
Opening balance	--	851.50	1,241.50
Closing balance	851.50	1,241.50	1,641.50

85.

	Wk 1	Wk 2	Wk 3
Total cash outflow	20.40	48.20	28.80
Opening balance	--	211.00	361.00
Closing balance	211.00	361.00	500.00

86.

	Wk 5	Wk 6	Wk 7
Total cash outflow	75.60	--	152.00
Net cash flow	--	-149.50	--
Opening balance	--	495.00	345.50
Closing balance	495.00	345.50	569.50

87.

	Apr	May	Jun
Total inflow	1,400	2,390	1,157
Total outflow	778	603	703
Net cash flow	622	1,787	454
Opening balance	--	1,522	3,309
Closing balance	1,522	3,309	3,763

88. Total inflow £2,200
Total cash flow £1,108
Net cash flow £1,182
Closing balance £934

89.

Total inflow
Total outflow
Net cash flow
Opening balance
Closing balance

90.

Total inflow
Total outflow
Net cash flow
Opening balance
Closing balance

91. £12,000/(£76 – £59) = £12,000/£17 = 705.88

92. £19,500/(£147 – £94) = £19,500/£53 = 367.92

93. £49,000/(£850 – £572) = £49,000/£278 = 176.26

94. £102,000/(£13,400 – £6,990) = £102,000/£6,410 = 15.91

95. Fixed costs = £19,700/(£142 – £101) = £19,700/£41 = 480.49

96. £8,000/(£19.99 – £13.99) = £8,000/£6.00 = 1,333.33

97. Fixed cost = £28,000/(£34.99 – £20.29) = £28,000/£14.70 = 1,904.76

98. Fixed costs = £17,750/(£47 – £43) = £17,750/£4 = 4,437.50

99. £1,650/(£140 – £111) = £1,650/£29 = 56.90

100. Fixed costs £3,900/(£17 – £14.70) = £3,900/£2.30 = 1,695.65

101. £2,900/(£29.99 – £12.99) = £2,900/£17.00 = 169.41

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