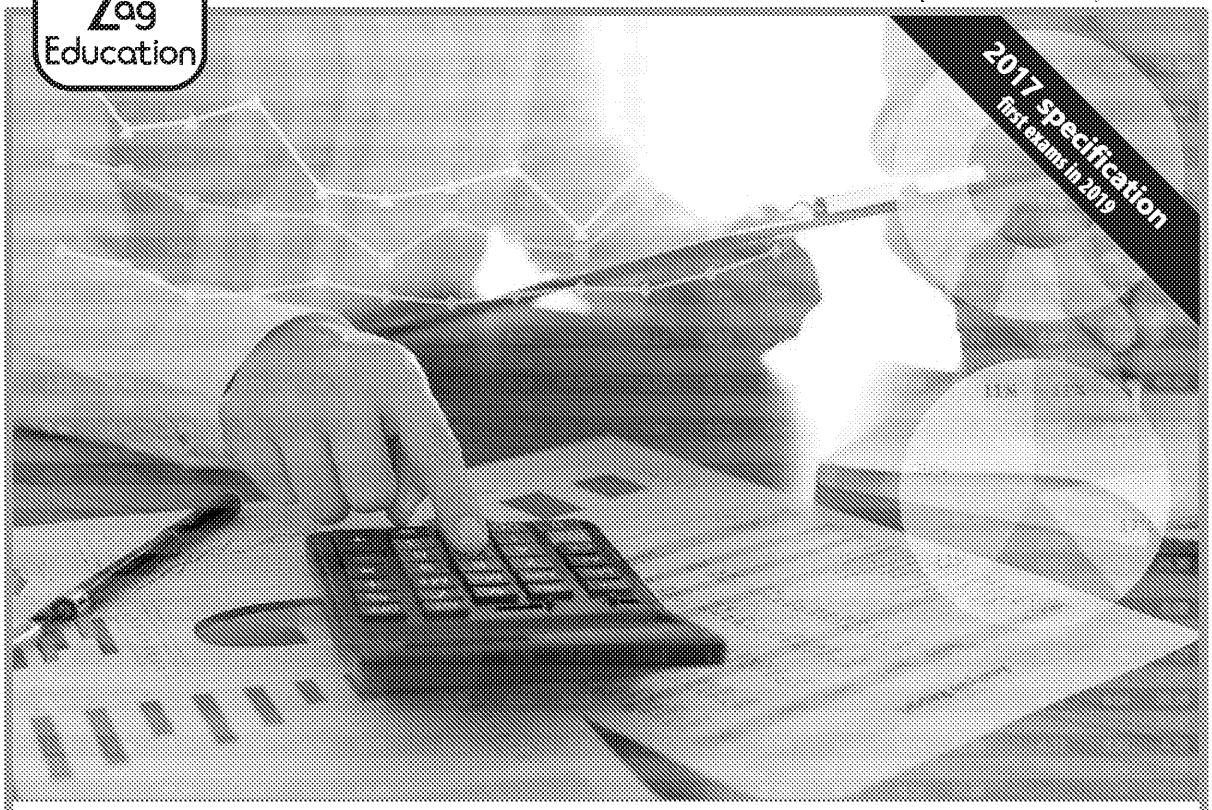
Zig Zag Education

Business GCSE (9–1) | Edexcel | 1BS0



101 Calculation Activities

for GCSE (9–1) Edexcel Business

P Miles

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Contents

Teacher's Introduction

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

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

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
- margin of safety

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

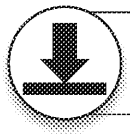
Questions in Set A mirror those in Set B – the format for both sets is the same. The calculations tested in Set A are retested in Set B using different data, designed to allow the students to practise the calculation skill again either in class as a consolidation activity, outside class for homework, 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 reve[illegible] of a small pottery business trading. (Give your answer to one de[illegible] place.)
   - Year 3: £34,500
   - Year 4: £41,900

3. Calculate the percentage change in the revenue of a garage over the past tw 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 answer to one decimal place.)
   - 2018: £62,000
   - 2019: £78,000

5. Calculate the percentage change in the [illegible] of a pony trekking centre o answer to one decimal place.)
   - Year 1: £78,000
   - Ye[illegible]8

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 betwe
   - Year 1: £162,500
   - Year 2: £184,900

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

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

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

9. Three convenience stores dominate the market in the Eastshire area. The va
Calculate (to two decimal places) the market share of each store from their

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
share is measured at £4 million. What is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is the

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

11. A business decides to stop making products where **either** sales have fallen f
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

12. Five businesses dominate a particular market. The value of the market is £9
each business are shown in the table below. Calculate (to two decimal plac

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 t
total revenue was generated by each treatment. (Give your answers to two

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 was generated by each product range. (Give your answers to two decimal p

    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

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

    Which tasks should be mentioned in the advert?

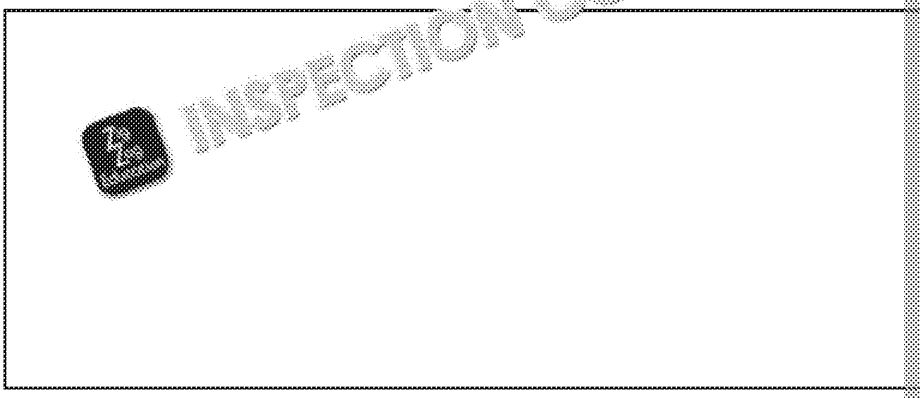
    Last year's revenue: £43,000

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

16. A carpet showroom monitors its sales revenue over the past six months, an 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

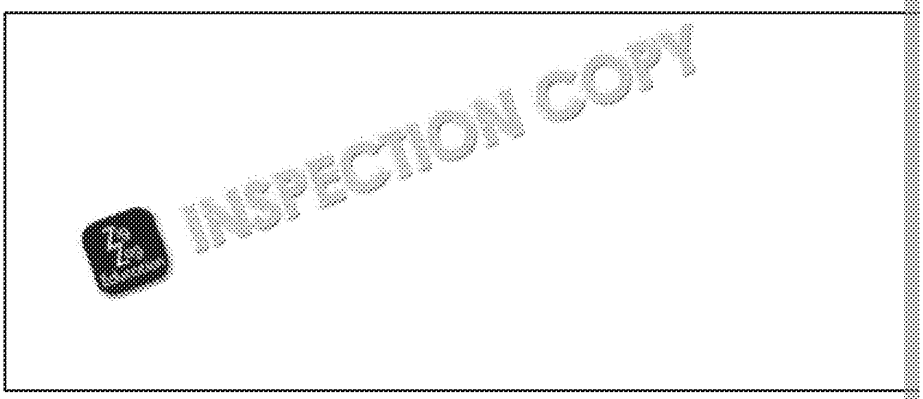
- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for M[illegible]?
- What is the percentage change in reven[illegible]?



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 tab 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



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

- £67
- £82
- £62
- £74
- £65

Calculate the average charge.

19. An eng ng carries out regular tests on its products. Five products n
breaki have been recorded as lasting the following lengths of time du

- 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

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

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

From the figures provided of the average June temperature for the last six y
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
The space could be used for other products with a high profit margin, but he
disappointed that they can't buy compost.

The manager decides to calculate the average number of bags sold each mo
four years. He will then stock the average quantity this year. Round your an
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

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

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

Staff whose average falls below six calls per hour over the week will be offe 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	[illegible]
D	38	37	39	[illegible]	[illegible]
E	42	39	[illegible]	[illegible]	42
F	41	[illegible]	[illegible]	39	38
G	[illegible]	[illegible]	41	42	40

23. The owner of a small independent bookshop has started to sell online in ad 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 onlin

	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	£5[illegible]	£344

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

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 wo[illegible] 12.18
- Day 2: departs break room 12.[illegible] orkstation 12.19
- Day 3: departs break [illegible] at workstation 12.17

What i[illegible]ve[illegible]ime for Employee A and Employee B to return to their

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

25. An animal sanctuary relies completely on donations to do its work. This mea

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

- 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 ev
the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 poin
2 points.
- Every athlete achieving an average four points over all five events will b

Which athlete/s is/are selected?

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

27. You have been offered three different part-time jobs, but they have differen
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 wou

Job A: 15 hours a week over three shifts; £127.50 in total; return bus fare £2
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.

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

- 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 [illegible] shopping malls have to decide which one to close shoppi[illegible]it.

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	
Average footfall per week	9,700	12,400	8,9
Average spend per customer	£62	£59	£4
Average time spent in mall per customer	1½ hours	2 hours	2½
Number of shops in mall	60	72	83

30. An experienced childmin[illegible]nte[illegible]s to set up her business in a new area. In parents will pay in [illegible]re, she collects some information. What is the ave before [illegible]sc[illegible]ol, and for full day care?

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

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 bes[illegible] to a range of customers during the ye
    - 14 sets of 'Aut[illegible] £[illegible] a set
    - 23 [illegible] of [illegible]land' @ £750 a set
    - 6 [illegible] '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 re
    - 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 o
    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 [illegible] revenue for the season?

35. The high season for a pony trekking centre is May to August. The centre ne
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 sh
of £1,700 to cover h[illegible] 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?

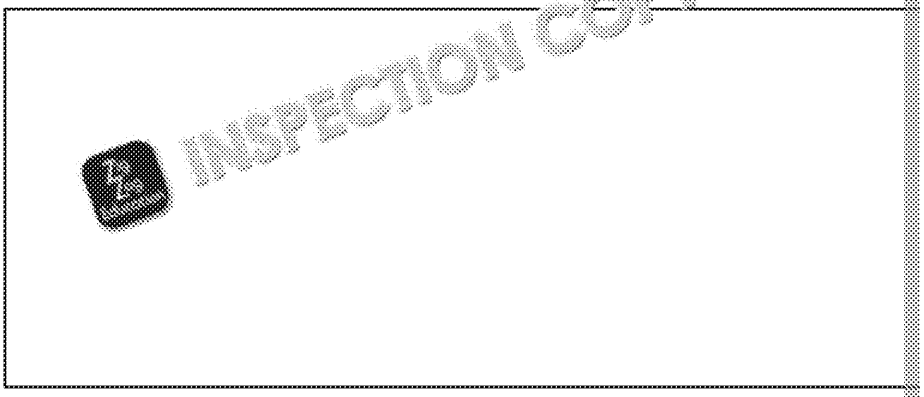
37. A garden centre owner hopes to increase revenue in December by selling se
achieved a revenue of £12,400.
    - 314 wreaths sold @ £19.99 each
    - 620 poinsettia plants in decorative pots sold @ £4.99 each

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

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

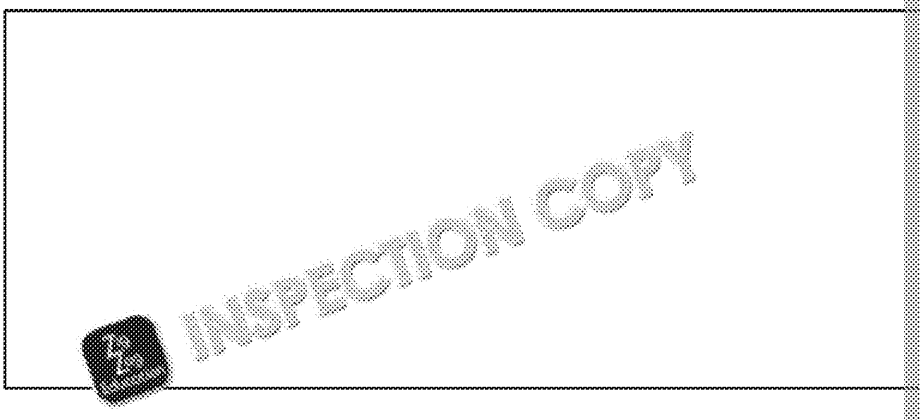
Rent	£48,000
Machinery purchase	£17,000
Fabric per roll	£25
Insurance premium	£1,850
Thread per reel	£2
Packaging plastic per roll	£6



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

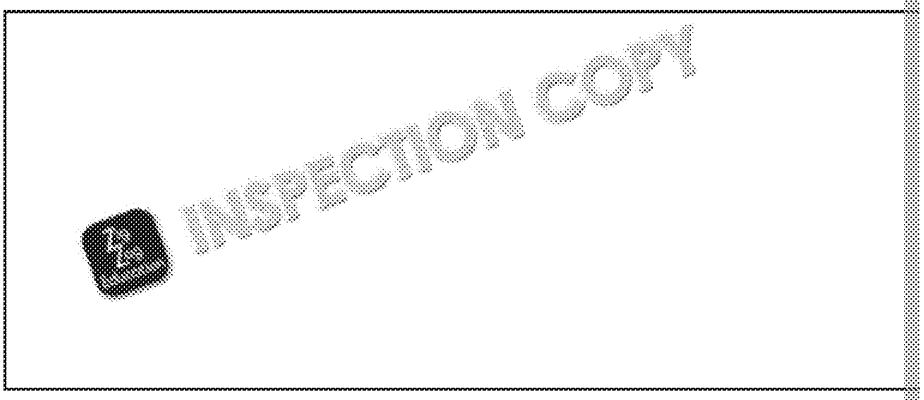
Rent of studio	£12,000
Purchase of wheel and kiln	£7,000
Clay – 50 kg block	£70
Glaze – per litre	£9
Bubble wrap – per roll	£12
Advertising and website charges per annum	£720



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 o

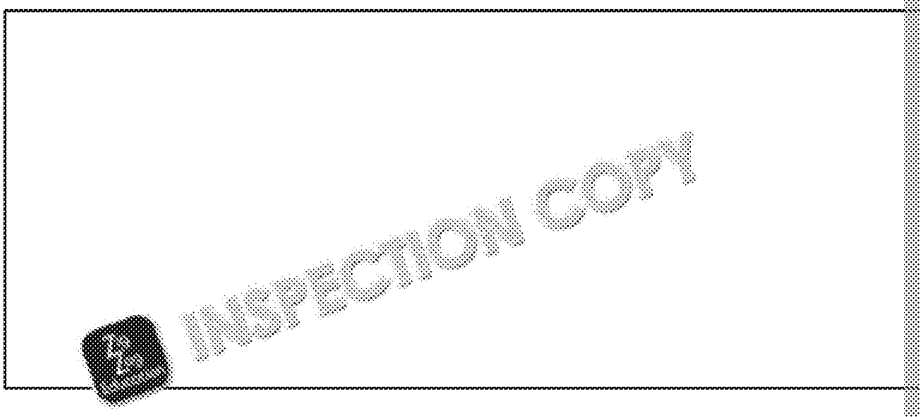
Rent of premises	£22,000
Purchase vehicle lift	£16,000
Engine oil per litre	£3
Replacement exhausts each	£140
Advertising per annum	£6,000



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 hou

    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



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 £18,000 last year. He provide

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

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

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 speciali
very popular so he wants to see whether he made a profit > £1,000 last yea

- 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

Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. 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 sandw

    At the end of Year 2 the council moved the bus stop that was adjacent margin and net profit margin to analyse the impact this had on the profit m your a 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 seco the first year. Use gross profit margin and net profit margin calculations (to 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

49. Your friend is thinking about buying a local business – an independent static margin (GPM) and net profit margin (NPM) (to two decimal places) analyse 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

50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the f (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 ne answers to two decimal places.)
    - Revenue: £67,300
    - Expenses: £12,600
    - Cost of sales: £11,500

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

53. Last year a small ho[illegible] with static caravans achieved a gross profit m
margin [illegible]%.

This year, the weather hasn't been good, and there are lots of cheap foreign h
is strong. The park owner asks you to check whether this year they have exce

- 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 p
by at least 3% this year.

Here are this year's figures. Has the [illegible]e been achieved? Show your ans
- Revenue: £79,500
- Cost of sale[illegible]
- N[illegible]t: [illegible]2,400

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

Looking at the figures below for this year, is the gym doing better or worse t

- 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 wi
itself as 'dog friendly' may be damaging his business. It opened just over a y
below for the boutique hotel, calculate the gross profit margin and net prof
impact of the competitor.

Last year:

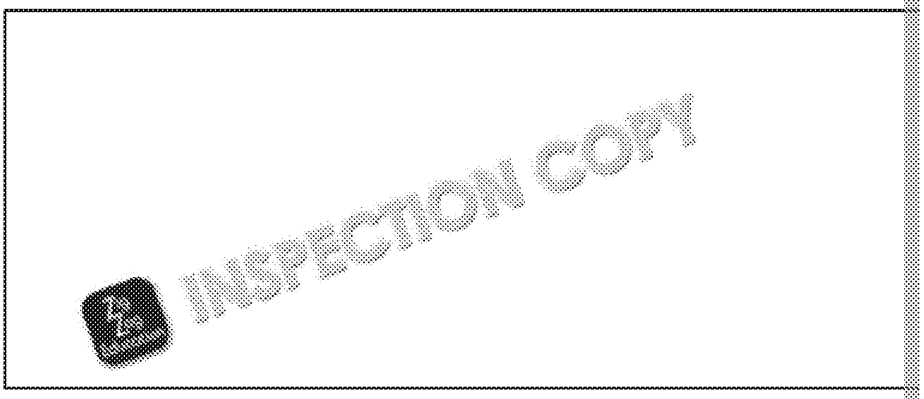
- Revenue: £143,000
- Gross profit: £76,000
- Net profit: £49,000

This year:

- Revenue: £152,000
- Gross profit: £79,0
- Net profit: £51,000

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

	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 boar
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

59. A small business specialising in accompanied mountain treks is struggling. F
mountain ranges are being sold. The owner is considering 'mothballing' the
improves. Look at the figures below. Calculate gross profit margin and net p
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
street. Analyse the last three years' figures and recommend whether or not

	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

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 £[illegible]00.

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

63. Calculate ARR from the following information. (Give your answer to two dec

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 dec

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 dec

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 dec

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 dec

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

68. Calculate ARR from the following information. (Give your answer to two dec

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 dec

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 cal
    - 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 c
    - 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 c

	X-300	X-350
Purchase price	£62,000	£76,000
Profit Year 1	£16,200	£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 th
recommend, based on ARR? (Show your calculations to two decimal places.

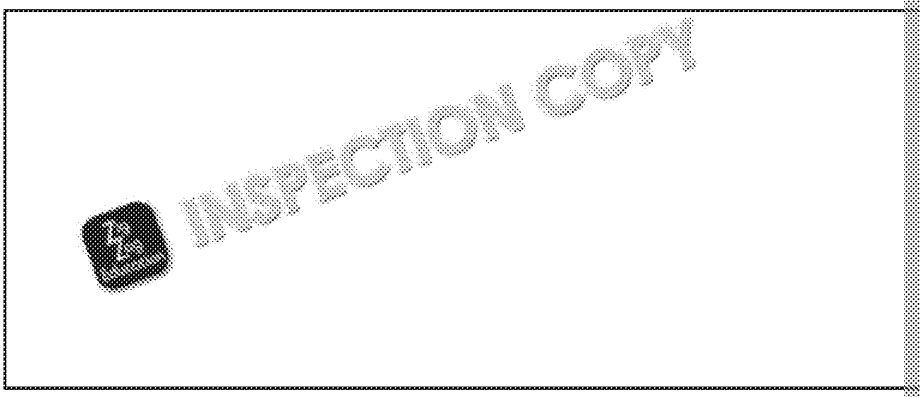
Purchase prices are: A £52,000, B £47,000, C £56,000.

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	£11150	£11,870
Year 4	£11,900	£10,700	£11,140
Year 5	£10,300	£10,350	£10,800

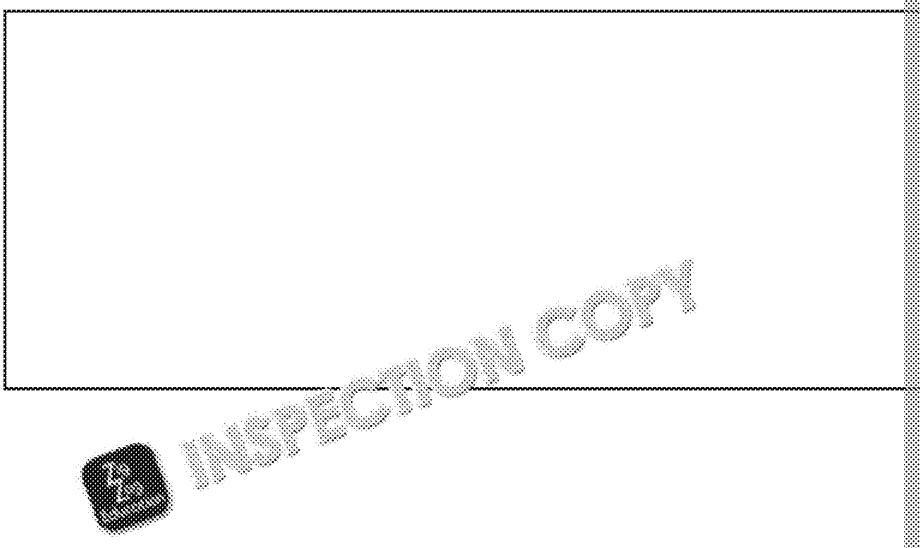
74. A small dry cleaning business has decided to replace its cleaning equipment which would you recommend based on ARR? (Show your calculations to tw

	Wash O Matic Purchase price £16,900	Speedy W 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



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 option 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
Profit Year 2	£3,800	£4,200	£4
Profit Year 3	£3,500	£3,700	£3



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.

Incor	
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

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

80. Complete the

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

81. Complete the

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

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	£1,1[illegible]	£1,400,000	£1,560,000	£1
Total cash outflow	£[illegible]00	£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	£	£	£

87. Complete the gaps in the cash flow.

	April £	May £	Ju
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			
Open ance	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	

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	206	
Closing balance	824	

90. Complete the gaps in the cash flow.

	February £	March £	A
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			

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 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

The milling machine cost £6,000. Their new product sells at £16.99 per unit. 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/u Insurance is £3,620.

The new premises will be used to make a new product. The variable costs pe price per unit is

Calculate the break-even point for this new venture.

Margin of safety

98. The owner of a new business monitors sales over the first six months. The b
calculated as 1,763 units.

What is the margin of safety?

Month	Number of sales
1	700
2	814
3	398
4	502
5	487
6	460

99. A potte s a n for £4,300 and uses it e a new range of lidded pots.
- Each pot sells for £60.
- Clay/slip/firing costs are £7 per bowl.
- The potter sells 324 bowls.

A. What is the break-even point?
B. What is the margin of safety?

100. A youth club needs to raise funds, so it arranges to print T-shirts to sell.
- The screen-printing kit costs £34.
- Ink per T-shirt costs 75p.
- Each T-shirt costs £2.
- The printed T-shirts will be sold for £6.50 each.

The total number of T-shirts sold is 48.

A. Calculate the break-even point.
B. Calculate the margin of safety.

101. A nail technician invests in a course (£700) and equipment (£180) to be able to offer a gel nails service.
- A set of nails costs £ to supply, and the cost to customers is £10.
- O n six months, the technician pr 97 sets of nails to clients.

A. Does this allow the technician to break even?
B. Is there a margin of safety?

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 tw one decimal place.)
   - Previous year: £272,000
   - Current year: £30[illegible]

4. Calcul[illegible] pe[illegible]entage change in the revenue of a boat hire firm between answe[illegible] decimal place.)
   - 2018: £62,000
   - 2019: £78,000

5. Calculate the percentage change in the revenue of a pony trekking centre o answer to one decimal place.)
   - Year 1: £78,000
   - Year 2: £81,000

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 betwe
   - Year 1: £162,500
   - Year 2: £184,900

8. Three branches of a high-street shoe shop chain are set a target of increasin by 15% this August, compared to last August. They choose different method
   - Branch A offers a discount on a pair of trainers when bought with a full Aug Y1: £92,000; Aug Y2: £104,500
   - Branch B offers free polish and shoe labels with [illegible]y pair of school sh Aug Y1: £86,000; Aug Y2: £97,800
   - Branch C offers 10% off the pri[illegible] school shoes purchased in Augu Aug Y1: £87,000; Aug Y[illegible]

   Did any[illegible]e [illegible]anches achieve the 15% increase? (Give your answer

9. Three c[illegible]enience stores dominate the market in the Eastshire area. The va Calculate (to two decimal places) the market share of each store from their

   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
share is measured at 7%. What is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is the

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

11. A business decides to stop making products where **either** sales have fallen f
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 revenu
A	£700,000	£660,000
B	£362,000	£3[illegible]0
C	£460,000	£[illegible],000
D	£851,000	£775,000

12. Five businesses dom[illegible]icular market. The value of the market is £9
each bu[illegible]s a[illegible]n in the table below. Calculate (to two decimal plac

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 t
total revenue was generated by each treatment. (Give your answers to two

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
was generated by each product range. (Give your answers to two decimal p

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 [illegible]0

15. A self-[illegible]ed painter and decorator is thinking about how best to advert
focus o[illegible]sting all tasks that contributed more than 20% of last year's total

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

16. A carpet showroom monitors its sales revenue over the past six months, an 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 M[illegible]?
- What is the percentage change in reven[illegible]r [illegible]y?

17. An independent travel agency re[illegible] three of its holidays and the average past two years.

Based [illegible] data and the information in the table, which holiday would yo stops o[illegible]g?

Year	Holiday	Number of customers	Total reve
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 comp calculating the average amount charged by similar businesses. The room rat businesses are:

- £67
- £82
- £62
- £74
- £65

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products r breaking and have been recorded as lasting the following lengths of time du

- What is the average length of time taken for a p[illegible]ct to break?
- How many of these products have a bre[illegible]t that is higher than

Product	Time be[illegible] br[illegible]
A	[illegible]
B	[illegible]minutes
C	7 minutes 30 seconds
D	6 minutes 30 seconds
E	4 minutes

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

From the figures provided of the average June temperature for the last six y
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 [illegible] about the amount of space allocated
The space could be [illegible] other products with a high profit margin, but he
disapp[illegible]ti[illegible] can't buy compost.

The ma[illegible] decides to calculate the average number of bags sold each mon
years. He will then stock the average quantity this year. Round your answer u

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 workin
five days.

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

Staff whose average falls below six calls per hour over the week will be offe
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	[illegible]
C	46	41	41	[illegible]	[illegible]
D	38	37	[illegible]	[illegible]	41
E	42	[illegible]	42	41	42
F	[illegible]	[illegible]	40	39	38
G	[illegible]	39	41	42	40

23. The owner of a small independent bookshop has started to sell online in add
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 onlin

	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 workplace by moving the b
the production line. They all take breaks at the same time – the start and fin
buzzer. The manager is interested to see how much time could be saved get

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 v

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

25. An animal sanctuary relies completely on donations to do its work. This mea

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

- 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 ev
the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 poin
2 points.
- Every athlete achieving an average of four points over all five events will b

Which athlete/s is/are selected?

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

27. You have been offered three different part-time jobs, but they have differen
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 wou

Job A: 15 hours a week over three shifts; £127.50 in total; return bus fare £2
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.

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

- 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	[illegible]	[illegible]	19	15	24	30	11	17

29. The ow[illegible] f t[illegible]ee large shopping malls have to decide which one to close
shoppi[illegible]its.

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	
Average footfall per week	9,700	12,400	8,9
Average spend per customer	£62	£59	£4
Average time spent in mall per customer	1½ hours	2 hours	2½
Number of shops in mall	60	72	83

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

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

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 ye
    - 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 po

33. The owner of a lar[illegible] specialising in MOT tests checks last month's re
    - 3[illegible]T t[illegible]s carried out @ £70 each
    - Re[illegible] 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 o 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 ne 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 sl 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 garde[illegible]tr[illegible] hopes to increase revenue in December by selling se achiev[illegible]venue of £12,400.
    - 31[illegible]reaths 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?

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 stu[illegible] last year.
    2. Revenue for the year was £43,500. How much profit was made?

    Last year the pottery st[illegible] 1,000 kg of clay, 2 litres of glaze and 2

R[illegible] of s[illegible]	£12,000
[illegible]e 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 o

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[illegible] feed and 23 sets of horseshoes, and they paid the instructor to work 70 hou

    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[illegible]
Hay	[illegible]3 per bale
Feed	£12 per sack
Farrier (sh[illegible])	£80 per set
[illegible]p[illegible]ed instructor	£22 per hour

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 £[illegible] last year. He provide

1. Calculate his total costs [illegible] following data.
2. Did he make a [illegible]

[illegible]ce per annum	£870
P[illegible]se 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 l
job to make up her income. From the figures below, was this achieved last y

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 speciali
very popular so he wants to see whether he made a profit > £1,000 last yea

- 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

Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. 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 sandw

    At the end of Year 2 the local council moved the bus stop that was adjacent margin and net profit margin to analyse the impact they had on the profit m your answers to two decimal places, where appropriate.)

    Compare your answer with the data 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 seco the first year. Use gross profit margin and net profit margin calculations (to 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 margin (GPM) and net profit margin (NPM) (to two decimal places) analyse 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

50. Calculate gross profit margin (GPM) and net profit margin (NPM) from the f (Give your answers to two decimal places.)
    - Revenue: £172,000
    - Cost of sales: £97,000
    - Expenses: £17,500

51. Using the above information, calculate gross profit margin (GPM) and ne answers to two decimal places.)
    - Revenue: £67,300
    - Expenses: £12,600
    - Cost of sales: £11,500

52. Use the following data to calculate gross profit margin (GPM) and net profit
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 m
margin of 44%.

    This year, the weather hasn't been good, and there are lots of cheap foreign h
is strong. The park owner asks you to check whether this year they have exce

    - Revenue: £83,200
    - Cost of sales: £24,200
    - Expenses and interest: £4, [illegible]

54. Last ye[illegible] da[illegible] a flower shop showed the following figures:
    - Re[illegible] £76,000
    - Gross profit: £58,000
    - Net profit: £29,200

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

    Here are this year's figures. Has the increase been achieved? Show your ans
    - 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 exercisi
advice of her accountant, who has emailed to say that last year her gross pr
profit margin was 35%.

    Looking at the figures below for this year, is the gym doing better or worse
    - 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 wi
itself as 'dog friendly' may be damaging his business. It o[illegible]ened just over a y
below for the boutique hotel, calculate the gross [illegible]argin and net prof
impact of the competitor.

    Last year:
    - Reve[illegible]e: [illegible]
    - G[illegible]ofi[illegible] £76,000
    - Ne[illegible]it: £49,000

    This year:
    - Revenue: £152,000
    - Gross profit: £79,0
    - Net profit: £51,000

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

	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 boar
gross profit margin and the net profit margin.

Revenue for the year	£26,000
Cost of sales	£7,800
Interest payments	£72
Advertising/website	£600
Vehicle costs	£4,080

59. A small business specialising in accompanied mountain treks is struggling. F
mountain ranges are being sold. The owner is considering 'mothballing' the
improves. Look at the figures below. Calculate gross profit margin and net p
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
street. Analyse the last three years' figures and recommend whether or not

	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

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 dec

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 dec

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 dec

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 dec

Purchase price	£32,000
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 dec

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 dec

Purchase price	£13,750
Profit	
Year 1	£8,100
Year 2	£6,[illegible]
Year 3	£9,900
Year 4	£5,700

69. Calculate ARR from the following information. (Give your answer to two dec

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 cal
    - 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 c
    - 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 c

	X-300	X-350
Purchase price	£62,000	£[illegible]00
Profit Year 1	£16,300	£17,480
Profit Year 2	£17,[illegible]	£18,000
Profit Year 3	£[illegible],000	£18,200
Profit Year 4	£16,400	£17,300

73. A business has three options to replace existing machinery. Which of the th
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	£11150	£11,870
Year 4	£11,900	£10,700	£11,140
Year 5	£10,300	£10,350	£10,800

74. A small dry cleaning busines[illegible]ed to replace its cleaning equipment
which would you re[illegible]ased on ARR? (Show your calculations to tw

	Wash O Matic Purchase price £16,900	Speedy W 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

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

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: £430
    - Fixed costs: £[illegible]

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 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

    The milling machine cost £6,000. Their new product sells at £16.99 per unit. 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/u Insurance is £3,620.

    The new premises will be used to make a new product. The variable costs p price per unit is £27.50.

    Calculate the break-even point for this new venture.

Margin of safety

98. The owner of a new business monitors sales over the first six months. The b
calculated as 1,763 units.

What is the margin of safety?

Month	Number of sales
1	700
2	814
3	398
4	502
5	487
6	460

99. A potter buys a new ki ,300 and uses it to make a new range of lidde
- Ea t s £60.
- Cl firing costs are £7 per bowl.
- The potter sells 324 bowls.

A. What is the break-even point?
B. What is the margin of safety?

100. A youth club needs to raise funds, so it arranges to print T-shirts to sell.
- The screen-printing kit costs £34.
- Ink per T-shirt costs 75p.
- Each T-shirt costs £2.
- The printed T-shirts will be sold for £6.50 each.

The total number of T-shirts sold is 48.

A. Calculate the break-even point.
B. Calculate the margin of safety.

101. A nail technician invests in a course (£700) and equipment (£180) to be able
- A set of nails costs £2.70 to apply, and the cost to customers is £10.
- Over the next six months, the technician provides 97 sets of nails to cli

A. Does this allow the technician to break even?
B. Is there a margin of safety?

Percentages and percentage change

1. Calculate the percentage change in the revenue of a small factory between (Give your answer to one decimal place.)
   - Year 1: £449,000
   - Year 2: £507,000

2. Calculate the percentage change in the reve[illegible] of a small pottery business trading. (Give your answer to one de[illegible] place.)
   - Year 3: £38,400
   - Year 4: £42,00[illegible]

3. Calculate the percentage change in the revenue of a garage over the past tw 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 answer to one decimal place.)
   - 2018: £45,000
   - 2019: £53,000

5. Calculate the percentage change in the [illegible]e[illegible] of a pony trekking centre o answer to one decimal place.)
   - Year 1: £67,000
   - Ye[illegible] £7[illegible]

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 betwe
   - Year 1: £143,500
   - Year 2: £170,900

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

   - 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 sh Aug Y1: £86,000; Aug Y2: £88,400
   - Branch C offers 10% off the price of all school shoes purchased in Augu Aug Y1: £87,000; Aug Y2: £104,000

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

9. Three convenience stores dominate the market in the Eastshire area. The va
Calculate (to two decimal places) the market share of each store from their

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
share is measured at 2[illegible] what is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is the

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

11. A business decides to stop making products where **either** sales have fallen f
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

12. Five businesses dominate a particular market. The value of the market is £9
each business are shown in the table below. Calculate (to two decimal place

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
total revenue was generated by each treatment. (Give your answers to two

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 was generated by each product range. (Give your answers to two decimal p

    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

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

    Which tasks should be mentioned in the advert?

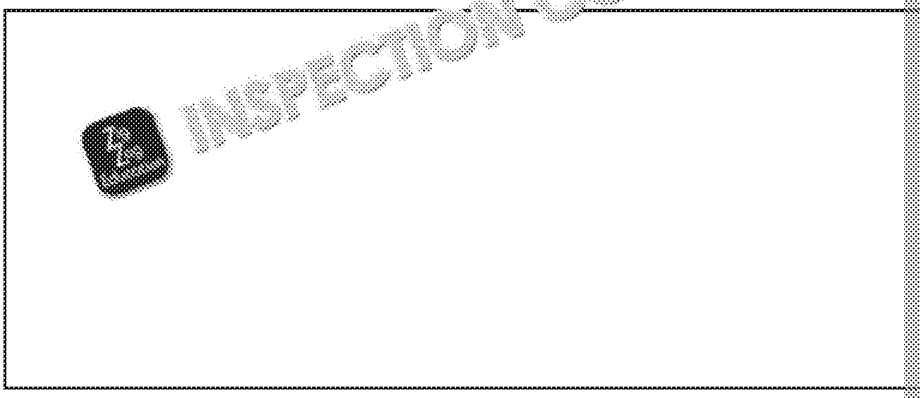
    Last year's revenue: £47,500

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

16. A carpet showroom monitors its sales revenue over the past six months, an 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

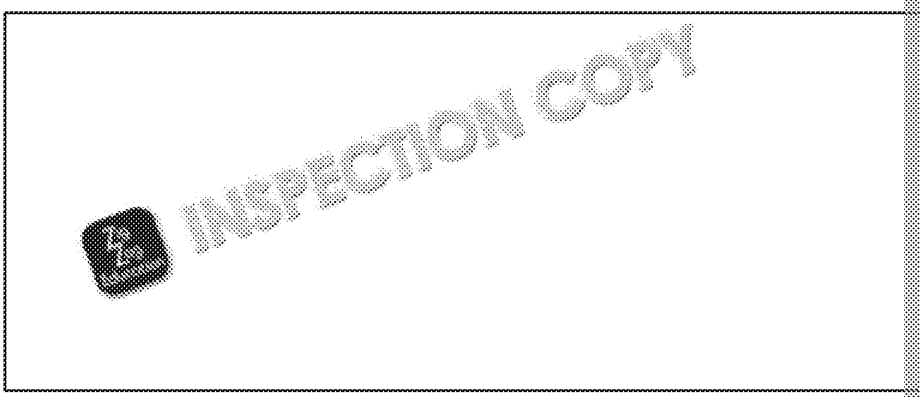
- What was the average (mean) sales revenue per month last year?
- What is the average (mean) sales revenue per month this year?
- What is the percentage change in revenue for M[illegible]?
- What is the percentage change in reven[illegible]r [illegible]y?



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 tab recommend the travel agency stops offering?

Year	Holiday	Number of customers	Total revenu
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 comp
calculating the average amount charged by similar businesses. The room rat
businesses are:

- £65
- £84
- £60
- £79
- £67

Calculate the average charge.

19. An eng ng carries out regular tests on its products. Five products n
breaki have been recorded as lasting the following lengths of time du

- 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 t

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

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

From the figures provided of the average June temperature for the last six y
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
The space could be used for other products with a high profit margin, but he
disappointed that they can't buy compost.

The manager decides to calculate the average number of bags sold each mon
years. He will then stock the average quantity this year. Round your answer u

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 workin five days.

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

Staff whose average falls below six calls per hour over the week will be offe 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	[illegible]
D	33	38	42	[illegible]	[illegible]
E	40	34	[illegible]	[illegible]	43
F	37	[illegible]	[illegible]	32	31
G	[illegible]	[illegible]	43	36	47

23. The owner of a small independent bookshop has started to sell online in ad 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 onli

	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	£[illegible]	£303

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

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 wo[illegible] 12.19
- Day 2: departs break room 12.[illegible] orkstation 12.21
- Day 3: departs break [illegible] at workstation 12.20

What i[illegible]ve[illegible]me for Employee A and Employee B to return to their

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

25. An animal sanctuary relies completely on donations to do its work. This mea

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

- 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 ev
the county team.

- In each event, 1st place is awarded 6 points, 2nd place is awarded 4 poin
2 points.
- Every athlete achieving an average four points over all five events will b

Which athlete/s is/are selected?

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

27. You have been offered three different part-time jobs, but they have differen
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 wou

Job A: 15 hours a week over three shifts; £131.25 in total; return bus fare £2
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.

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

- 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	
Average footfall per week	10,050	13,900	9,0
Average spend per customer	£68	£62	£9
Average time spent in mall per customer	1½ hours	2 hours	2½
Number of shops in mall	68	73	78

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

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

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 bes[illegible] to a range of customers during the ye
    - 16 sets of 'Aut[illegible] £600 a set
    - 27 [illegible] of [illegible]land' @ £790 a set
    - 8 [illegible] 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 re
    - 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 o
    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 [illegible] revenue for the season?

35. The high season for a pony trekking centre is May to August. The centre ne
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 sh
of £1,900 to cover h[illegible] 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 se
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?

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 ma

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?

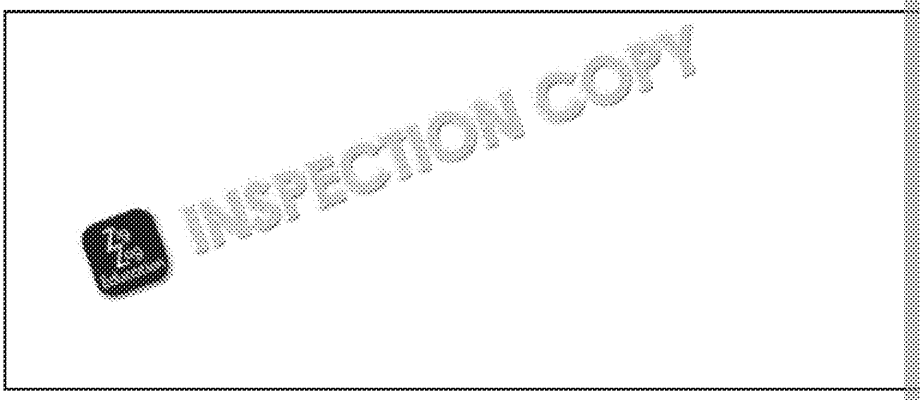
Last year the pottery studio used 150 kg of clay, 48 litres of glaze and 4

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 o

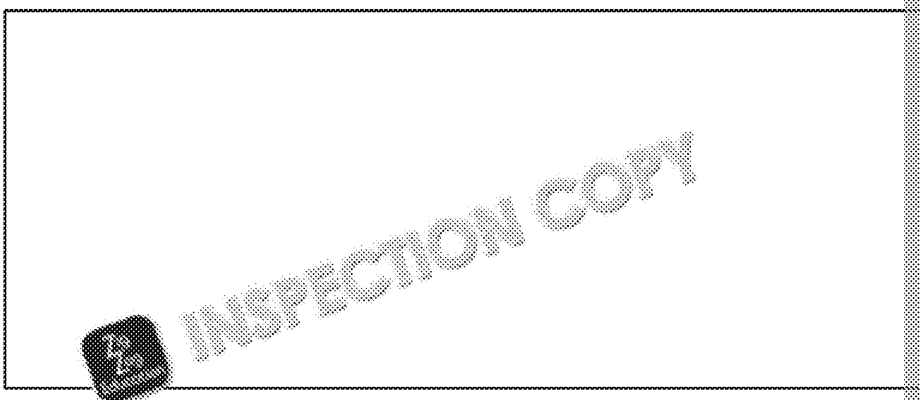
Rent of premises	£26,000
Purchase vehicle lift	£18,000
Engine oil per litre	£3.25
Replacement exhausts each	£159
Advertising per annum	£6,500



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 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



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 £22,000 last year. He provide

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 b
job to make up her income. From the figures below, was this achieved last y

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 speciali
very popular so he wants to see whether he made a profit > £1,000 last yea

- 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

Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. 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 sandw

    At the end of Year 2 the council moved the bus stop that was adjacent margin and net profit margin to analyse the impact this had on the profit m your a to two decimal places, where appropriate.)

    Compare your answer with the figures for Year 4.

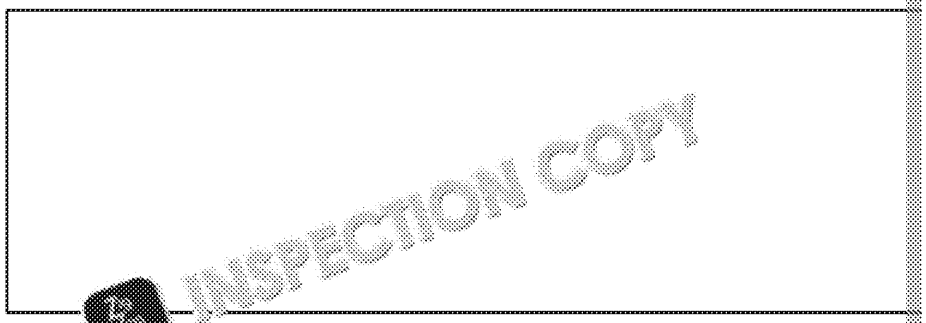
	Year 1	Year 2	Year 3	Year 4
Revenue	£57,500	£59,000	£57,000	£58,500
Gross profit	£31,200	£33,000	£28,000	£28,900
Net profit	£16,500	£18,200	£14,300	£18,000

48. The owner of a children's day nursery believes he is doing better in the seco the first year. Use gross profit margin and net profit margin calculations (to 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

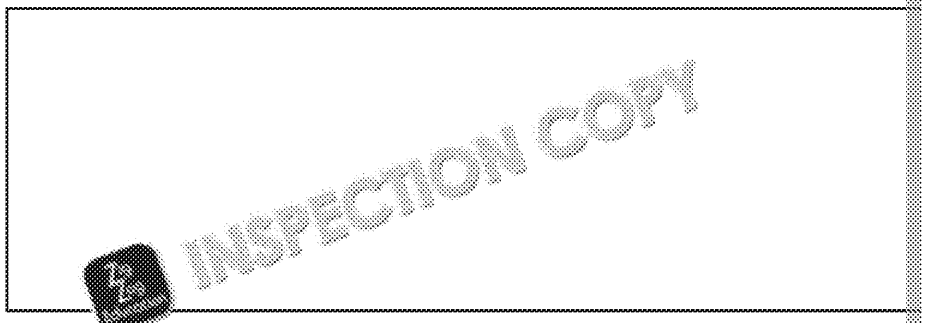
49. Your friend is thinking about buying a local business – an independent static margin (GPM) and net profit margin (NPM) (to two decimal places) analyse provided and advise them whether or not to go ahead with the purchase.

	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 f (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 ne answers 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
answers to two decimal places.)
    - Cost of sales: £22,000
    - Expenses: £18,500
    - Revenue: £88,000

53. Last year a small ho[illegible] with static caravans achieved a gross profit m
margin [illegible]%.

    This year, the weather hasn't been good, and there are lots of cheap foreign h
    is strong. The park owner asks you to check whether this year they have exce

    - 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 p
    by at least 3% this year.

    Here are this year's figures. Has the [illegible]e been achieved? Show your ans
    - Revenue: £82,500
    - Cost of sale[illegible]
    - N[illegible]t: [illegible]9,000

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

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

- 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 wi
itself as 'dog friendly' may be damaging his business. It opened just over a y
below for the boutique hotel, calculate the gross profit margin and net prof
impact of the competitor.

Last year:

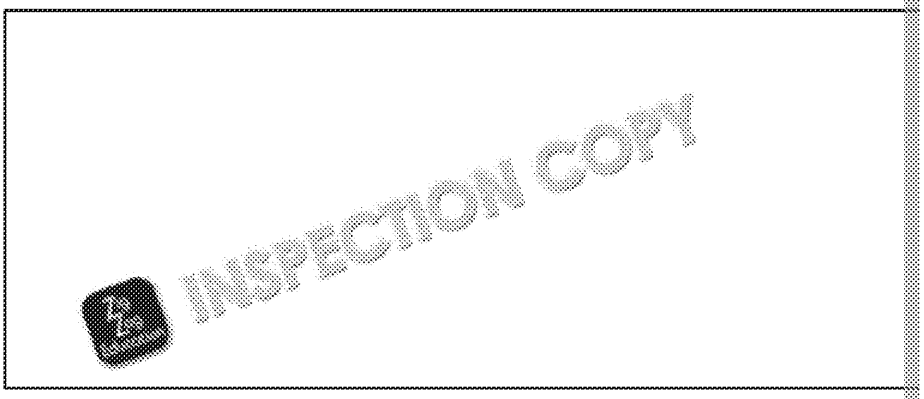
- Revenue: £160,000
- Gross profit: £82,000
- Net profit: £51,000

This year:

- Revenue: £147,00
- Gross profit: £75,0
- Net profit: £54,00

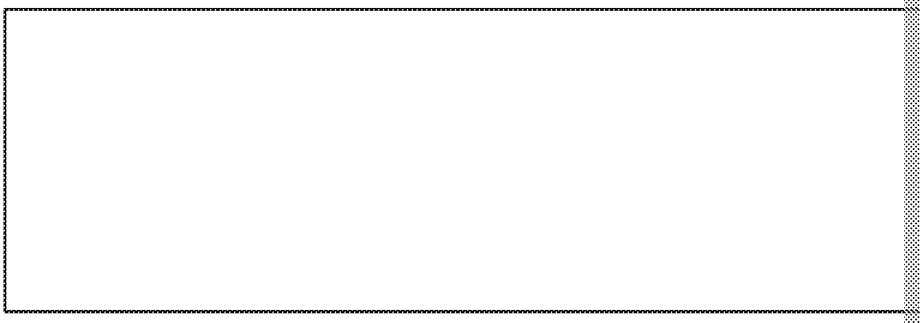
57. The owner of a small courier firm is considering retiring. In order to sell the
has been advised that both the gross profit margin and net profit margin ne
three years. Analyse his figures below (to two decimal places), and see whe

	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



58. Use the following information provided by your friend, who runs a pet boar
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. F
mountain ranges are being sold. The owner is considering 'mothballing' the
improves. Look at the figures below. Calculate gross profit margin and net p
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

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

	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

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 £[illegible]

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

63. Calculate ARR from the following information. (Give your answer to two dec

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 dec

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 dec

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 dec

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 dec

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

68. Calculate ARR from the following information. (Give your answer to two dec

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 dec

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 cal
    - 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 c
    - 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 c

	X-300	X-350
Purchase price	£67,000	£79,800
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

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

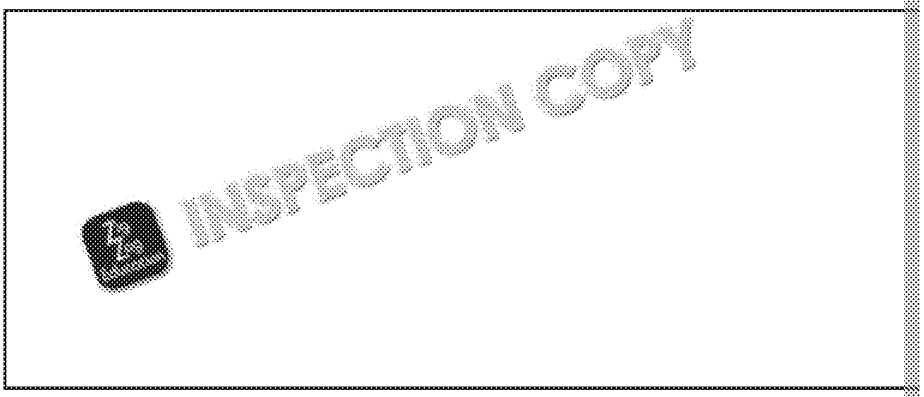
Purchase prices are: A £52,700, B £51,000, C £63,000.

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

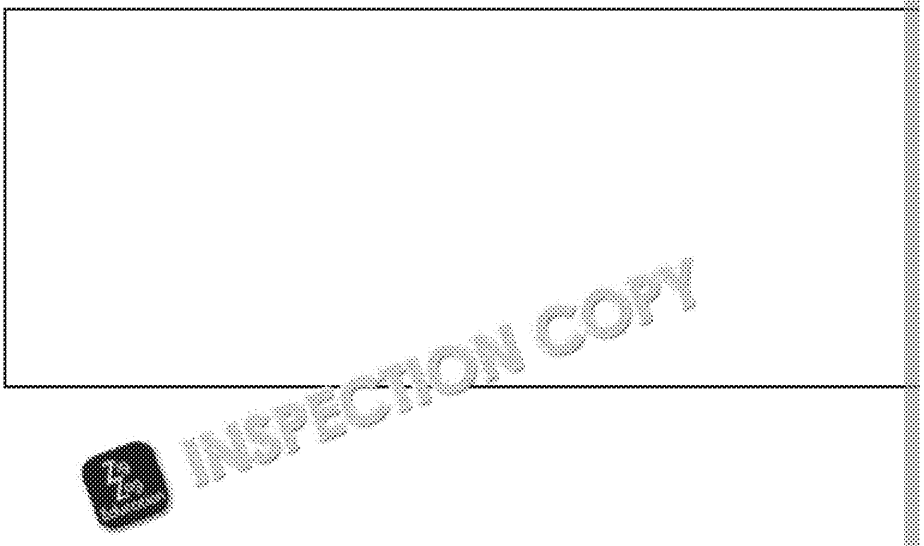
74. A small dry cleaning business has decided to replace its cleaning equipment
which would you recommend based on ARR? (Show your calculations to tw

	Wash O Matic Purchase price £17,500	Speedy W 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



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 option
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
Profit Year 2	£3,600	£3,800	£3
Profit Year 3	£3,200	£3,100	£3



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.

Incor	
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

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

80. Complete the

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

81. Complete the

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

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	D[illegible]mber	January	
Total cash inflow	£1,[illegible]	£1,407,000	£1,700,000	£1
Total cash outflow	£[illegible]00	£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	£	£	£

87. Complete the gaps in the cash flow.

	April £	May £	Ju
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			
Open ance	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	

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 £	A
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			

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 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

The milling machine cost £8,000. Their new product sells at £19.99 per unit. 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/u Insurance is £4,090.

The new premises will be used to make a new product. The variable costs pe price per unit is

Calculate the break-even point for this new venture.

Margin of safety

98. The owner of a new business monitors sales over the first six months. The b
calculated as 1,820 units.

What is the margin of safety?

Month	Number of sales
1	720
2	840
3	402
4	515
5	490
6	488

99. A potte s a n for £4,900 and uses it e a new range of lidded pots.
- Each pot sells for £59.99.
- Clay/slip/firing costs are £9 per bowl.
- The potter sells 365 bowls.

A. What is the break-even point?
B. What is the margin of safety?

100. A youth club needs to raise funds, so it arranges to print T-shirts to sell.
- The screen-printing kit costs £42.
- Ink per T-shirt costs 80p.
- Each T-shirt costs £2.50.
- The printed T-shirts will be sold for £6.99 each.

The total number of T-shirts sold is 46.

A. Calculate the break-even point.
B. Calculate the margin of safety.

101. A nail technician invests in a course (£840) and equipment (£229) to be able to offer a gel nails service.
- A set of nails costs £ to supply, and the cost to customers is £11.99.
- O n six months, the technician pr 140 sets of nails to clients.

A. Does this allow the technician to break even?
B. Is there a margin of safety?

Percentages and percentage change

1. Calculate the percentage change in the revenue of a small factory between (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 trading. (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 tw one decimal place.)
   - Previous year: £243,000
   - Current year: £29[illegible]

4. Calcul[illegible] percentage change in the revenue of a boat hire firm between answer[illegible] decimal place.)
   - 2018: £45,000
   - 2019: £53,000

5. Calculate the percentage change in the revenue of a pony trekking centre o answer to one decimal place.)
   - Year 1: £67,000
   - Year 2: £79,000

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 betwe
   - Year 1: £143,500
   - Year 2: £170,900

8. Three branches of a high-street shoe shop chain are set a target of increasin by 15% this August, compared to last August. They choose different method
   - 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 sh Aug Y1: £86,000; Aug Y2: £88,400
   - Branch C offers 10% off the price of all shoes purchased in Augu Aug Y1: £87,000; Aug Y2: £[illegible]00

   Did any of the three [illegible] achieve the 15% increase? (Give your answer

9. Three [illegible]ience stores dominate the market in the Eastshire area. The va Calculate (to two decimal places) the market share of each store from their

   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
share is measured at 9%. What is their turnover?

Flexigym carries out a successful marketing campaign, and the outcome is the

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

11. A business decides to stop making products where **either** sales have fallen f
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 revenu
A	£700,000	£602,000
B	£362,000	£3[illegible]0
C	£460,000	£[illegible]3,000
D	£851,000	£811,000

12. Five businesses domi[illegible]icular market. The value of the market is £9
each bus[illegible]s a[illegible]s in the table below. Calculate (to two decimal place

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
total revenue was generated by each treatment. (Give your answers to two

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
was generated by each product range. (Give your answers to two decimal p

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: [illegible]

15. A self-[illegible]ec[illegible]ainter and decorator is thinking about how best to advert
focus o[illegible]g all tasks that contributed more than 20% of last year's total

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

16. A carpet showroom monitors its sales revenue over the past six months, an 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 r vs ree of its holidays and the average past two years.

Based d the information in the table, which holiday would yo stops c ?

Year	Holiday	Number of customers	Total reve
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 comp calculating the average amount charged by similar businesses. The room rat businesses are:

- £65
- £84
- £60
- £79
- £67

Calculate the average charge.

19. An engineering firm carries out regular tests on its products. Five products n breaking and have been recorded as lasting the following lengths of time du

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

Product	Time before brea
A	6 minute seconds
B	seconds
C	minutes 5 seconds
D	8 minutes 15 seconds
E	4 minutes 10 seconds

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

From the figures provided of the average June temperature for the last six y
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 co[illegible]ed about the amount of space allocated
The space could be use[illegible] other products with a high profit margin, but he
disappoint[illegible] can't buy compost.

The ma[illegible] decides to calculate the average number of bags sold each mon
years. He will then stock the average quantity this year. Round your answer u

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 workin
five days.

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

Staff whose average falls below six calls per hour over the week will be offe
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	[illegible]
C	40	42	38	[illegible]	[illegible]
D	33	38	[illegible]	[illegible]	28
E	40	[illegible]	[illegible]	48	43
F	[illegible]	[illegible]	48	32	31
G	[illegible]	34	43	36	47

23. The owner of a small independent bookshop has started to sell online in ad
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 onlin

	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 w pl ce by moving the b
the production line. They all take break t the ame time – the start and fin
buzzer. The manager is interest s how much time could be saved get

Two members of st olunteer to be timed.

Emplo sing original break room
- Da 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 usi
compared to the new one?

25. An animal sanctuary relies completely on donations to do its work. This mea

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

- 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 ev
the county team.

- In each event, 1st place is awarded 6 points, 2nd ac is awarded 4 poin
2 points.
- Every athlete achieving an a g r points over all five events will b

Which athlete/a n lected?

	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

27. You have been offered three different part-time jobs, but they have differen
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 wou

Job A: 15 hours a week over three shifts; £131.25 in total; return bus fare £2
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.

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

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

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

29. The ow[illegible] f t[illegible]ee large shopping malls have to decide which one to close
shoppi[illegible]its.

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	
Average footfall per week	10,050	13,900	9,0
Average spend per customer	£68	£62	£9
Average time spent in mall per customer	1½ hours	2 hours	2½
Number of shops in mall	68	73	78

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

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

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 ye
    - 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 pot

33. The owner of a larg[illegible] specialising in MOT tests checks last month's re
    - 48[illegible]T t[illegible]rried out @ £70 each
    - Re[illegible] 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 o
    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 ne
    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 sh
    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 own[illegible] increase revenue in December by selling se
    achieved [illegible] £13,300.
    - 3[illegible]ths sold @ £21.99 each
    - 67[illegible]insettia plants in decorative pots sold @ £5.99 each

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

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 ma

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

Last year the pottery st[illegible] 150 kg of clay, 48 litres of glaze and 4

R[illegible] of s[illegible]	£13,300
[illegible]e 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 o

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[illegible]
Hay	£3.75 per bale
Feed	£14 per sack
Farrier (sh[illegible])	£87 per set
[illegible]p[illegible]ed instructor	£26 per hour

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 £[illegible]00 last year. He provide

1. Calculate his total costs [illegible] following data.
2. Did he make a [illegible]

[illegible]ce per annum	£907
P[illegible]se 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 b
job to make up her income. From the figures below, was this achieved last y

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 speciali
very popular so he wants to see whether he made a profit > £1,000 last yea

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

Gross profit margin and net profit margin

46. Calculate gross profit margin and net profit margin from the following data. 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 sandw

    At the end of Year 2 the local council moved the bus stop that was adjacent margin and net profit margin to analyse the impact this had on the profit m 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	£59,500	£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 seco the first year. Use gross profit margin and net profit margin calculations (to 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 static margin (GPM) and net profit margin (NPM) (to two decimal places) analyse provided 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 f (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 ne answers 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 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 m
margin of 44%.

This year, the weather hasn't been good, and there are lots of cheap foreign h
is strong. The park owner asks you to check whether this year they have exce

- 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 p
by at least 3% this ye

Here a ye s figures. Has the increase been achieved? Show your ans
- Re £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 exercisi
advice of her accountant, who has emailed to say that last year her gross pr
profit margin was £35%.

Looking at the figures below for this year, is the gym doing better or worse t
- 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 wi
itself as 'dog friendly' may be damaging his business. It opened just over a y
below for the boutique hotel, calculate the gross profit margin and net prof
impact of the competitor.

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

This year:
- Revenue: £147,000
- Gross profit: £75,0
- Net profit: £54,000

57. The owner of a small courier firm is considering retiri n order to sell the
has been advised that both the gross profit m n and net profit margin ne
three years. Analyse his figures belo w decimal places), and see whe

		2018	2019
Revenue £		84,500	87,300
Gros £	51,000	54,500	58,500
Net pr	39,000	42,500	44,600

58. Use the following information provided by your friend, who runs a pet boar
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. F
mountain ranges are being sold. The owner is considering 'mothballing' the
improves. Look at the figures below. Calculate gross [illegible] margin and net p
you recommend?

	2016	2017	2018
Revenue £	59,[illegible]	67,000	53,000
Gross [illegible] £	[illegible]80	44,800	31,000
Net p[illegible]	29,000	30,600	17,600

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

	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

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 dec

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 dec

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 dec

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 dec

Purchase price	£[illegible]
[illegible]	
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 dec

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 dec

Purchase price	£16,000
Profit	
Year 1	£4,000
Year 2	£3,[illegible]
Year [illegible]	£3,900
Year [illegible]	£3,700

69. Calculate ARR from the following information. (Give your answer to two dec

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 cal
    - 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 c
    - 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 c

	X-300	X-350
Purchase price	£67,000	£[illegible]0
Profit Year 1	£15,000	£16,400
Profit Year 2	£16,[illegible]	£17,000
Profit Year 3	£[illegible]4[illegible]	£17,800
Profit Year 4	£15,800	£16,300

73. A business has three options to replace existing machinery. Which of the th
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 tw

	Wash O Matic Purchase price £17,500	Speedy W 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

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
Profit Year 2	£3,600	£3,800	£3
Profit Year 3	£3,200	£3,100	£3

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: £[illegible]

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 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

    The milling machine cost £8,000. Their new product sells at £19.99 per unit. 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/u Insurance is £4,090.

    The new premises will be used to make a new product. The variable costs p price per unit is £34.99

    Calculate the break-even point for this new venture.

Margin of safety

98. The owner of a new business monitors sales over the first six months. The b
calculated as 1,820 units.

What is the margin of safety?

Month	Number of sales
1	720
2	840
3	402
4	515
5	490
6	488

99. A potter buys a new ki ,900 and uses it to make a new range of lidde
- Ea t s £59.99.
- Ci firing costs are £9 per bowl.
- The potter sells 365 bowls.

A. What is the break-even point?
B. What is the margin of safety?

100. A youth club needs to raise funds, so it arranges to print T-shirts to sell.
- The screen-printing kit costs £42.
- Ink per T-shirt costs 80p.
- Each T-shirt costs £2.50.
- The printed T-shirts will be sold for £6.99 each.

The total number of T-shirts sold is 46.

A. Calculate the break-even point.
B. Calculate the margin of safety.

101. A nail technician invests in a course (£840) and equipment (£229) to be able
- A set of nails costs £3.50 to apply, and the cost to customers is £11.99.
- Over the next six months, the technician provides 140 sets of nails to c

B. Does this allow the technician to break even?
B. Is there a margin of safety?

Answers – Set A

1. 22,000/307,000 × 100 = 7.2% increase

2. 7,400/34,500 × 100 = 21.4% increase

3. 37,000/272,000 × 100 = 13.6% increase

4. 16,000/62,000 × 100 = 20.5% increase

5. 3,000/78,000 × 100 = 3.8% increase

6. 9,000/32,000 × 100 = 28.1%
   Yes, she achieved the increase of at least 15%.

7. 22,400/162,500 × 100 = 13.8% increase. Therefore, they have not achieved the 14% increase.

8. Branch A: 12,500/92,000 × 100 = 13.59%
   Branch B: 11,800/86,000 × 100 = 13.72%
   Branch C: 14,600/87,000 × 100 = 16.78%
   Branch C achieved the 15% increase.

9. Discount Plus: 800,000/3,000,000 × 100 = 26.67%
   Easyshop: 765,000/3,000,000 × 100 = 25.50%
   Freshshop: 921,000/3,000,000 × 100 = 30.70%

10. 7% of £4 million is £280,000
    376,000/4,000,000 × 100 = 9.4%

11. A. 40,000/700,000 × 100 = 5.71% fall
    Market share: 660,000/7,000,000 × 100 = 9.43%
    B. 50,000/362,000 × 100 = 13.81% fall
    Market share: 312,000/4,000,000 × 100 = 7.80%
    C. 54,000/460,000 × 100 = 11.74% fall
    Market share: 406,000/8,000,000 × 100 = 5.08%
    D. 76,000/851,000 × 100 = 8.93% fall
    Market share: 775,000/12,000,000 × 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 × 100
    A. 270,000/900,000 × 100 = 30.00%
    B. 87,000/900,000 × 100 = 9.67%
    C. 115,000/900,000 × 100 = 12.78%
    D. 240,000/900,000 × 100 = 26.67%
    E. 170,000/900,000 × 100 = 18.9%

    Others: 18,000/900,000 × 100 = 2.00%

13. Manicure/pedicure: 14,000/27,000 × 100 = 51.85%
    Brow reshape: 3,000/27,000 × 100 = 11.11%
    Lash tint: 3,500/27,000 × 100 = 12.96%
    Facial: 6,500/27,000 × 100 = 24.07%

14. Engagement rin
    Wedding rings: 6
    Watch batteries
    Watch straps: 3
    Earrings: 17,555
    Necklaces: 29,0
    Wristwatches: 1

15. Wallpapering: 1
    Interior painting
    Exterior painting
    Staining woodw

    The advert shou
    interior painting

16. Average last yea
    Average this yea
    March = 5,000/9
    July = 4,200/5,5

17. Average spend:
    2019 Peru Trek
    Spanish Villa £6
    2018 Peru Trek
    Spanish Villa £7

    Stop offering th
    average spend.

18. £350/5 = £70

19. 29 minutes in to
    60 × 0.8 = 48 se
    Average breakin

    Three of the pro
    higher than the

20. 114/6 = 19 degr

21.

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

22. A. 195/35 = 5
    B. 211/35 = 6
    C 205/35 = 5
    D. 192/35 = 5
    E. 206/35 = 5
    F. 200/35 = 5
    G. 203/35 = 5

    Staff member D

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 onli[illegible] 2,893/72 = £40.18

24. A. 18[illegible] minutes
B. 9/3[illegible] minutes

20 × 6 = 120 minutes or 2 hours spent moving back from break per day
20 × 3 = 60 minutes or 1 hour spent moving back from break per day

25. Brand X = 16 cats × 7 days = 112 meals. 168/112 = £1.50
Brand Y = 19 cats × 7 days = 133 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 × £2.60) = £127.50 – £7.80
= £119.70 actual income

Job B: £105/12 = £8.75 per hour
£105 – (2 × £3) = £105 – £6
= £99 actual income

Job C: £144.80/16 = £9.05 per hour
£144.80 – (4 × £3.50) = £144.80 – £14
= £130.80 actual income

28. Total marks = 294 [illegible] 6
Seven [illegible] e[illegible]ed the average score.

29. Mall A
9,700 × £62 = £601,400
Per shop = 601,400/60 = £10,023.33
Spend per hour = 9,700 × 1.5 = 14,550 hours in mall
601,400/14,550 = £41.33

Mall B
12,400 × £59 = £[illegible]
Per shop = 731,6[illegible]
Spend per hour [illegible]
731,600/24,800 [illegible]

Mall C
8,900 × £42 = £3[illegible]
Per shop = 373,8[illegible]
Spend per hour [illegible]
373,800/22,250 [illegible]

Mall C to close [illegible]

30. Care before/afte[illegible]
Day care: 152/4[illegible]

31. 85 × £7 = £595
57 × £3 = 171
75 × £8 = 600

Total revenue = [illegible]

32. 14 × £875 = £12[illegible]
23 × £750 = £17[illegible]
6 × £1,560 = £9,[illegible]

Total revenue = [illegible]

33. 314 × 70 = £21,9[illegible]
+ £12,300 = £34[illegible]

34. 370 × £60 = £22[illegible]
440 × £42 = £18[illegible]
673 × £30 = £20[illegible]
315 × £50 = £15[illegible]

Total revenue = [illegible]

35. 619 × £55 = £34[illegible]
1,406 × £39 = £5[illegible]

Total is £88,879.[illegible]

36. 37 × 30 = £1,11[illegible]
16 × £60 = £960

Total is £2,070.[illegible]

37. 314 × £19.99 = £[illegible]
620 × £4.99 = £3[illegible]

Total is £9,370.6[illegible]
been exceeded.

38. Split into fixed a[illegible]
Fixed costs 48,0[illegible]
Variable costs 8[illegible]
150 × £6 = 900.
Total costs 66,8[illegible]

172,000 – 88,15[illegible]

39. Fixed costs 12,000 + 7,000 + 720 = 19,720
Variable costs 1,000/50 = 20 × £70 = 1,400 clay
42 × £9 = 378
2 × £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 × £3 = 4,200
900 × £140 = 126,000
£4,200 + £126,000 = 130,200

Total costs = 44,000 + 130,200
322,800 – 174,200 = £148,600 pro

41. Fixed costs 17,000 + 2,[illegible] + 2,850 = 28,150

Variabl[illegible],300 × £3 = 3,900
80 × £12[illegible]
23 × £80 = 1,840
70 × £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 × £4.50 = 10,422
2,316 × 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 × 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 × £62 = 496
37 × £2 = 74

Total va[illegible] co[illegible]
Total c[illegible]5 + 570 = 4,615

Profit = 19,000 – 4,615 = £14,385

No, the dressmaker needs an additional income.

45. Sales revenue 8[illegible]

Fixed costs £173[illegible]

Variable costs £[illegible]
£3 × 83 = £249

Total costs 173[illegible]

Profit 3,486 – 82[illegible]

Yes, last year's p[illegible]

46. GPM 82,000/11[illegible]
NPM 53,500/11[illegible]

47. Y1 GPM 34,500/[illegible]
NPM 18,500/59[illegible]

Y2 GPM 35,840/[illegible]
NPM 19,250/64[illegible]

Y3 GPM 31,720/[illegible]
NPM 15,300/61[illegible]

Y4 GPM 30,780/[illegible]
NPM 17,750/57[illegible]

Drop in profit m[illegible]
However, NPM [illegible]

48. Y1 GPM 258,000[illegible]
Y1 NPM 89,000/[illegible]
Y2 GPM 283,000[illegible]
Y2 NPM 91,000/[illegible]

No, he is not do[illegible]
figures look bett[illegible]
true picture.

49. Y1 GPM 112,000[illegible]
Y1 NPM 67,000/[illegible]
Y2 GPM 103,000[illegible]
Y2 NPM 61,000/[illegible]
Y3 GPM 98,000/[illegible]
Y3 NPM 59,000/[illegible]

Costs are being [illegible]
go ahead. Some[illegible]

50. Calculate gross p[illegible]
GPM 75,000/17[illegible]

Calculate net pr[illegible]
NPM 57,500/17[illegible]

51. Calculate gross p[illegible]
GPM 55,800/67[illegible]

Calculate net pr[illegible]
NPM 43,200/67[illegible]

52. Calculate gross p[illegible]
GPM 68,400/93[illegible]

Calculate net pr[illegible]
NPM 51,650/93[illegible]

53. Gross profit 83,200 – 24,200 = 59,000
GPM 59,000/83,200 × 100 = 70.91%

Net profit 59,000 – 24,380 = 34,620
NPM 34,620/83,200 × 100 = 41.61%

No, this year hasn't exceeded last year's profit margins.

54. Last year
GPM 8,000/76,000 × 100 = 76.32%
NPM 29,200/76,000 × 100 = 38.42%

This year
Gross profit = 79,500 – 20,500 = 59,000
GPM 59,000/79,500 × 100 = 74.21%
NPM 32,400/79,500 × 100 = 40.75%

No, the increase has not been achieved.

55. GPM 8[illegible],600,750 × 100 = 51.23%
NPM 54[illegible],600,750 × 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 × 100 = 53.15%
NPM 49,000/143,000 × 100 = 34.27%

This year
GPM 79,000/152,000 × 100 = 51.97%
NPM 51,000/152,000 × 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
GPM 48,000/76,000 × 100 = 63.16%
NPM 37,000/76,000 × 100 = 48.68%

2018
GPM 50,500/81,000 × 1,100 = 62.35%
NPM 39,200/81,000 × 100 = 48.40%

2019
GPM 51,750/83,500 × 100 = 61.98%
NPM 42,000/83,500 × 100 = 50.30%

Although the raw figures seem to show i[illegible] m[illegible] analysis shows that this is not th[illegible]e

58. Calculate GP 26,[illegible]0 = 18,200
GPM 1[illegible]6,0[illegible] × 100 = 70%

Calculate NP 18,200 – (720 + 600 + 4,080) = 18,200 – 5,400 = 12,800
NPM 12,800/26,000 × 100 = 49.23%

59. 2016
GPM 43,000/64
NPM 31,000/64

2017
GPM 48,000/68
NPM 34,500/68

2018
GPM 23,000/48
NPM 15,750/48

60. Year 1
GPM 28,000/39
NPM 21,000/39

Year 2
GPM 35,500/48
NPM 28,500/48

Year 3
GPM 45,500/57
NPM 37,800/57

The costs of run
increase expens

61. 32,000/5 = £6,4
£6,400/87,000 ×

62. 76,000/4 = 19,0
19,000/62,500 ×

63. Total profit = £6
66,050/4 = 16,5
16,512.50/86,0

64. Total profit = £1
128,450/5 = 25,
25,690/172,000

65. Total profit = £1
106,500/6 = 17,
17,750/47,000 ×

66. Total profit = £3
30,700/4 = 7,67
7,675/27,000 ×

67. Total profit = £1
112,450/6 = 18,
18,741.67/93,75

68. Total profit is £2
26,500/4 = 6,62
6,625/13,750 ×

69. Total profit = £3
37,400/5 = 7,48
7,480/42,000 ×

70. A. 42,000/5 = 8,400
8,400/33,000 × 100 = 25.45%

B. 35,000/4 = 8,750
8,750/26,000 × 100 = 33.65%

Choose Machine B.

71. 1. 18,400/4 = 4,600
4,600/13,000 × 100 = 35.38%
2. 27,000/4 = 6,750
6,750/17,000 × 100 = 39.71%

Choose Machine 2.

72. X-300 profit = 66,800
66,800/4 = 16,700
16,700/62,000 × 100 = 26.94%

X-350 profit 70
70,980
17,745/ × 100 = 23.35%

Choose X-300.

73. A. total profit = 59,650
59,650/5 = 11,930
11,930/52,000 × 100 = 22.94%

B. total profit = 56,150
56,150/5 = 11,230
11,230/47,000 × 100 = 23.89%

C. total profit = 59,160
59,160/5 = 11,832
11,832/56,000 × 100 = 21.13%

B is the best option.

74. Wash O Matic
18,860/5 = 3,772
3,772/16,900 × 100 = 22.32%

Speedy Wash
18,610/5 = 3,722
3,722/18,400 × 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 × 100 = 51.

Traditio ole 11,900/3 = 3,966.67
3,966.6 × 100 = 57.49%

Modern Press 12,400/3 = 4,133.33
4,133.33/7,500 × 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
Telephone 460
Net cash flow 1

78. Sales 83,200
Computer costs
Net cash flow 74

79. Total income 19
Materials 11,35
Net cash flow 15

80. Inflow 6,500
Telephone 230
Net cash flow 5,
Closing balance

81.

Inflow
Telephone
Total outflow
Net cash flow
Opening balan
Closing balanc

82.

Net cash flow
Opening balance
Closing balance

83.

Total cash inflow	1
Total cash outflow	7
Net cash flow	3
Opening balance	6
Closing balance	9

84.

Net cash flow
Opening balan
Closing balanc

85.

Total outflow
Opening balan
Closing balanc

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	3,87[illegible]

88. Total inflow 1,720
Total cash outflow 1,[illegible]
Net cas[illegible]
Closing [illegible]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	- 2225	-1,138	514

91. 9,500/(87 – 13)
129 units to bre

92. 16,000/(120 – 4

93. 32,070/(1,399 –

94. 75,000/(12,000 –

95. 17,200/(159 – 3

96. 6,000/(16.99 – 4
462 units to bre

97. 29,929/(27.50 –
2,138 units

98. Total sales = 3,3
3,361 – 1,763 (B

99. Break-even 4,30
324 – 82 = 242 b

100. Break-even 34/(
48 – 10 = 38 shi

101. Break-even 880,
nails to break ev
No, break-even
of safety.

Answers – Set B

1. 58,000/449,000 × 100 = 12.9% increase

2. 3,600/38,400 × 100 = 9.4% increase

3. 55,000/243,000 × 100 = 22.6% increase

4. 8,000/45,000 × 100 = 17.8% increase

5. 12,000/67000 × 100 = 17.9% increase

6. 3,000/36,000 × 100 = 8.3%
No, she did not achieve the increase of at least 1[illegible]%.

7. 27,400/143,500 × 100 = 19%
Yes, the owners have [illegible] their aim of 14% minimu[illegible]ea[illegible]

8. Branch A [illegible]000/92,000 × 100 = 23.91%
Branch B: 2,400/86,000 × 100 = 2.79%
Branch C: 17,000/87,000 × 100 = 19.54%

Branch A and Branch C achieved the 15% increase.

9. Discount Plus: 786,000/3,000,000 × 100 = 26.20%
Easyshop: 841,000/3,000,000 × 100 = 28.03%
Freshshop: 1,200,000/3,000,000 × 100 = 40.00%

10. 9% of £4 million is £360,000
385,000/4,000,000 × 100 = 9.6%

11. 98,000/700,000 × 100 = 14% fall
Market share 602,000/7,000,000 × 100 = 8.60%

    A. 32,000/362,000 × 100 = 8.84% fall
    Market share 330,000/4,000,000 × 100 = 8.25%
    B. 45,000/460,000 × 100 = 9.78% fall
    Market share 415,000/8,000,000 × 100 = 5.19 %
    C. 40,000/851,000 × 100 = 4.70% fall
    Market share 811,000/12,000,000 × 100 = 6.76%

    Stop making product A due to fall in sales > 12%.
    Stop making products C and D due to market share [illegible]%

12. Revenue/value of market × 100

    A. 190,000/900,[illegible]00 × 100 = 21.11%
    B. 9[illegible]00,[illegible]0 × 100 = 10.56%
    C. 12[illegible]00,000 × 100 = 13.78%
    D. 255,000/900,000 × 100 = 28.33%
    E. 178,000/900,000 × 100 = 19.78%

    Others 58,000/900,000 × 100 = 6.44%

13. Manicure/pedicure: 17,000/33,000 × 100 = 51.51%
Brow reshape: 5,000/33,000 × 100 = 15.15%
Lash tint: 4,000/33,000 × 100 = 12.12%
Facial: 7,000/33,000 × 100 = 21.21%

14. Engagement rin[illegible]
Wedding rings: [illegible]
Watch batteries[illegible]
Watch straps: 5[illegible]
Earrings: 15,455[illegible]
Necklaces: 31,0[illegible]
Wristwatches: 1[illegible]

15. Wallpapering: 1[illegible]
Interior painting[illegible]
Exterior painting[illegible]
Staining woodw[illegible]

    The advert shou[illegible]
    painting.

16. Average last yea[illegible]
Average this yea[illegible]

    March = 5,400/[illegible]
    July = 4,290/5,6[illegible]

17. Average spend:
2019 Peru Trek [illegible]
Spanish Villa £7[illegible]
2018 Peru Trek [illegible]
Spanish Villa £6[illegible]

    Stop offering th[illegible]
    in spend (despit[illegible]
    compared to inc[illegible]
    both Greek Islan[illegible]

18. £355/5 = £71

19. 31 minutes / 5 = [illegible]
60 × 0.2 = 12 se[illegible]

    Average breakin[illegible]

    Three of the pro[illegible]
    higher than the [illegible]

20. 123/6 = 20.5 de[illegible]

21.

Mar	20[illegible]
Apr	28[illegible]
May	42[illegible]
Jun	63[illegible]
Jul	55[illegible]
Aug	45[illegible]
Sept	34[illegible]

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 [illegible] = £1,982/6 = £330.33

ONLINE
Mon £[illegible] = £28.33
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 × 7 = 140 minutes or 2 hours 20 minutes spent moving back from break per day
20 × 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 minutes – 100 minutes = 40 minutes

25. Brand X = 19 cats × 7 days = 133 meals. 168/133 = £1.26
Brand Y = 22 cats × 7 days = 154 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: [illegible]15 – 3.75 per hour
131.25 – (2.5 × 3) = 131.25 – 8.25
= £123.00 actual income

Job B: 99.00/12 = 8.25 per hour
99 – (2.4 × 2) = 99 – 4.80
= £94.20 actual income

Job C: 150.40/16 = 9.40 per hour
150.40 – (2.75 × 4) = 150.40 – 11.00
= £139.40 actual income

28. Total marks = 2[illegible]
Seven students [illegible]

29. Mall A
10,050 × 68 = £[illegible]
Per shop = 683,4[illegible]
Spend per hour [illegible]
mall. 683,400/1[illegible]

Mall B
13,900 × 62 = 8[illegible]
Per shop 861,80[illegible]
Spend per hour [illegible]
86,180/27,800 = [illegible]

Mall C
9,050 × 90 = 814[illegible]
Per shop 814,50[illegible]
Spend per hour [illegible]
814,500/22,625 [illegible]

Mall B to close [illegible]

30. Care before/afte[illegible]
hour
Day care: £158/[illegible]

31. 89 × £6.75 = £60[illegible]
63 × £2.90 = £18[illegible]
104 × £9 = £936[illegible]

Total revenue = [illegible]

32. 16 × £800 = £12[illegible]
27 × £790 =£21,[illegible]
8 × £1,800 = £14[illegible]

Total revenue = [illegible]

33. 487 × £70 = £34[illegible]
£34,090 + £16,4[illegible]

34. 325 × £65 = £21[illegible]
403 × £40 = £16[illegible]
690 × £29 = £20[illegible]
346 × £55 = £19[illegible]

Total revenue = [illegible]

35. 590 × £50 = £29[illegible]
1,325 × £35 = £4[illegible]

Total is £75,875

36. 33 × £32 = £1,05[illegible]
21 × £55 = £1,15[illegible]

Total £2,211. Ye[illegible]

37. 340 × £21.99 = £[illegible]
676 × £5.99 = £4[illegible]

Total is £11,525[illegible]
not been exceed[illegible]

38. Split into fixed and variable costs:
Fixed costs £49,250 + £21,000 + £2,090 = £72,340
Variable costs £29 × 800 = £23,200, £2.50 × 200 = £500, £6.99 × 150 = £1,048.50
£23,200 + £500 + £1,048.50 = £24,748.50

Total costs £72,340 + £24,748.50 = £97,088.50
£163,000 – £97,088.50 = £65,911.50 profit

39. Fixed costs £13,300 + £7,400 + £795 = £21,495

Variable costs
£82 × 150 = £12,300
£10 × 48 = £480
£14.50 × 4 = £58

Total variable costs = £12,838
Total costs £12,838 + £21,495 = £34[illegible]

Profit £47,[illegible] – [illegible] = £12,867

40. Fixed co[illegible],000 + £18,000 + £6,500 = £50,500

Variable costs
£3.25 × 1,700 = £5,525
£159 × 870 = £138,330

Total costs £50,500 + £5,525 + £138,330 = £194,355

Profit £347,800 – £194,355 = £153,445

41. Fixed costs £18,800.00 + £9,100.00 + £2,950.00 = £30,850.00

Variable costs
£3.75 × 1,850 = £6,937.50
£14 × 93 = £1,302.00
£87 × 38 = £3,306.00
£26 × 95 = £2,470.00

Total costs £30,850 + £6,937.50 + £1,302 + £3,306 + £2,470 = £44,865.50
Profit £86,500 – £44,865.50 = £41,634.50

42. Fixed costs £3,900 + £906 + £2,200 + £390 = £7,396

Variable costs
£5 × 2,716 = £13,580
£0.90 × 2,716 = £2,444.40

Total costs £7,396 + £13,580 + £2,444.40 = £23,420.40
Profit £41,400 – £23,420.40 = £[illegible]

Yes, she [illegible] a

43. Fixed co[illegible]07 + £1,650 + £95 = £2,652
Variable costs £15 × 570 = £8,550
Total costs £2,652 + £8,550 = £11,202
Profit £22,000 – £11,202 = £10,798

Yes, he made a profit.

44. Fixed costs £12[illegible]

Variable costs
£11 × £67 = £73[illegible]
£44 × £2.50 = £1[illegible]

Total costs £4,5[illegible]
Profit = £21,000[illegible]
The dressmaker[illegible]

45. Revenue 76 × £4[illegible]

Fixed costs £208[illegible]

Variable costs
76 × £5.10 = £38[illegible]
76 × £3.5 = £266[illegible]

Total costs £208[illegible]

Profit £3,344 – £[illegible]
Yes, the artist's [illegible]

46. GPM £78,000/£[illegible]
NPM £56,000/£[illegible]

47. Year 1
GPM £31,200/£[illegible]
NPM £16,500/£[illegible]

Year 2
GPM £33,000/£[illegible]
NPM £18,200 / [illegible]

Year 3
GPM £28,000/£[illegible]
NPM £14,300/£[illegible]

Year 4
GPM £28,900/£[illegible]
NPM £18,000/£[illegible]

Impact of move[illegible]
in profit margins[illegible]
are improving.

48. Y1
GPM £267,000/[illegible]
NPM £84,000/£[illegible]

Y2
GPM £298,000/[illegible]
NPM £93,000/£[illegible]

The profit marg[illegible]
for Y1.

49. Y1 GPM £105,0[illegible]
Y1 NPM £63,000[illegible]
Y2 GPM £97,000[illegible]
Y2 NPM £58,000[illegible]
Y3 GPM £89,000[illegible]
Y3 NPM £53,000[illegible]

There was a dip[illegible]
slightly better –[illegible]
and then marke[illegible]

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 – £28,000 = £63,000
Net profit £63,000 – £27,500 = £35,500

GPM £63,000/£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 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/£
NPM £39,000/£

2018
GPM £54,500/£
NPM £42,500/£

2019
GPM £58,500/£
NPM £44,600/£

There is a small
GPM falls in 201
2017. If this can
circumstance, th
going concern.

58. Gross profit = £2
Net profit = £20
= £20,300 – £6,2

GPM £20,300/£
NPM £14,070/£

59. 2016
GPM £41,500/£
NPM £29,000/£

2017
GPM £44,800/£
NPM £30,600/£

2018
GPM £31,000/£
NPM £17,600/£

Recommend mo
licences are ava
can take treks.

60. Year 1
GPM £28,500/£
NPM £22,000/£

Year 2
GPM £37,000/£
NPM £31,050/£

Year 3
GPM £47,000/£
NPM £39,000/£

The business is
but opening a b
increase costs. I
online only. The
be permanent.

61. £35,000/5 = £7,
£7,000/£95,000

62. £82,000/4 = £20
£20,500/£104,0

63. Total profit = £59,750
£59,750/4 = £14,937.50
£14,937.50/£93,000 × 100 = 16.06%

64. Total profit = £122,450
£122,450/5 = £24,490
£24,490/£150,000 × 100 = 16.33%

65. Total profit = £107,870
£107,870/6 = £17,978.33
£17,978.33/£56,000 × 100 = 32.10%

66. Total profit = £31,200
£31,200/4 = £7,800
£7,800/£33,000 × 100 = 23.64%

67. Total profit = £117,600
£117,600/6 = £19,600
£19,600/£107,000 × 100 = 18.32%

68. Total pi[illegible]5,400
£15,400/[illegible] = £3,850
£3,850/£16,000 × 100 = 24.06%

69. Total profit = £29,400
£29,400/5 = £5,880
£5,880/£54,800 = 10.73%

70. A. £60,000/5 = £12,000
£12,000/£42,000 × 100 = 28.57%

B. £42,000/4 = £10,500
£10,500/£33,000 × 100 = 31.82%

Choose Machine B.

71. 1. £17,400/4 = £4,350
£4,350/£15,000 × 100 = 29%

2. £26,000/4 = £6,500
£6,500/£19,500 = 33.33%

Choose Machine 2.

72. X-300 profit = £63,300
£63,300/4 = £15,825
£15,825/£67,000 × 100 = 23.62%

X-350 profit = £67,500
£67,500/4 = £16,875
£16,875/£79,800 × 100 = 21.15%

Choose X-300.

73. A. to[illegible]fit [illegible]0
£5[illegible] = £11990
£1[illegible]/£52700 × 100 =22.75%

B. total profit = £52,300
£52,300/5 = £10460
£10,460/£51,000x 100 = 20.51%

C. total profit = £62,900
£62,900/5=£12,580
£12,580/£63,000 × 100 = 19.97%

Recommend option A.

74. Wash O Matic
Total profit = £1[illegible]
£17,850/5 = £3,[illegible]
£3,570/£17,500 [illegible]

Speedy Wash
Total profit = £1[illegible]
£19,200/5 = £3,[illegible]
£3,840/£19,750 [illegible]

Recommend W[illegible]

75. Super Press
Total profit = £1[illegible]
£11,100/3 = £3,[illegible]
£3,700/£8,700 [illegible]

Traditional Appl[illegible]
Total profit = £1[illegible]
£11,000/3 = £3,[illegible]
£3,666.67/£7,50[illegible]

Modern Press
Total profit = £1[illegible]
£11,300/3 = £3,[illegible]
£3,766.67/£7,00[illegible]

Recommend th[illegible]

76. Total income £1[illegible]
Total expenditu[illegible]
Net cash flow £1[illegible]

77. Total income £2[illegible]
Telephone £150
Net cash flow £1[illegible]

78. Sales £94,700
Computer costs [illegible]
Net cash flow £8[illegible]

79. Total income £1[illegible]
Materials £14,4[illegible]
Net cash flow £1[illegible]

80. Total inflow £7,[illegible]
Telephone £225
Net cash flow £6[illegible]
Closing balance [illegible]

81.

Total inflow	
Telephone	
Total outflow	
Net cash flow	
Opening balan	
Closing balanc	

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	31[illegible]

84.

	Aug	Sep	Oct
Net ca[illegible]	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	3,76[illegible]

88. Total inflow £2,290
Total cash outflo[illegible]
Net ca[illegible]1,[illegible]2
Closing [illegible] £934

89.

	Sept	Oct
Total inflow	12,300	8,890
Total outflow	10,690	9,170
Net cash flow	1,610	-280
Opening balance	--	5,150
Closing balance	5,150	4,870

90.

Total inflow	
Total outflow	
Net cash flow	
Opening balance	
Closing balance	

91. £12,000/(£76 –
= £12,000/£59 =

92. £19,500/(£147 –
£19,500/£94 = 2

93. £49,000/(£850 –
£49,000/£572 =

94. £102,000/(£13,4
£102,000/£6,99

95. Fixed costs = £1
£19,700/(£142 –
£19,700/£101 =

96. £8,000/(£19.99
£8,000/£13.99 =

97. Fixed cost = £28
£34,990/(£34.9
£34,990/£20.29

98. Total sales = 3,4
3,455 – 1,820 =

Margin of safety

99. Break even
£4,900/(£59.99
£4,900/£50.99 =
to break even.

Margin of safety

00. Break even £42/
= £42/£3.30 = £

Margin of safety

101. Break even
Fixed costs = £8
£1,069/(£11.99
£1,069/£8.49 =
provided to bre

Yes, the technic
Margin of safety