Name ANSWERS	Class

MATHS TEACHER HUB

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Percentages

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1F** question you are not allowed to use a calculator.
- If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

1 Find 10% of £320

£ 32

Specimen 2 – Paper 1F **(Total for Question 1 is 1 mark)**

5 Work out 50% of 240

120

November 2023 – Paper 2F **(Total for Question 5 is 1 mark)**

5 Work out 60% of 70

0.6 × 70

42

June 2017 – Paper 1F **(Total for Question 5 is 2 marks)**

6 Work out 20% of 80

16

June 2019 – Paper 3F **(Total for Question 6 is 2 marks)**

7 Work out 70% of £90

£ 63

Specimen 1 – Paper 2F **(Total for Question 7 is 2 marks)**

8 Work out 15% of 80

10% = 8
5% = 4
15% = 12

12

Sample 1 – Paper 1F **(Total for Question 8 is 2 marks)**

9 Work out 234% of 150

2·34 x 150

351

Sample 1 – Paper 3F **(Total for Question 9 is 2 marks)**

11 Adam gets a bonus of 30% of £80
Katy gets a bonus of £28

Work out the difference between the bonus Adam gets and the bonus Katy gets.

Adam 0·3 x £80 = £24
Katy = £28

£ 4

November 2018 – Paper 2F **(Total for Question 11 is 3 marks)**

11 In a shop, the normal price of a coat is £65
The shop has a sale.

In week 1 of the sale, the price of the coat is reduced by 20%
In week 2 of the sale, the price of the coat is reduced by a further £10

Maria has £40

Does Maria have enough money to buy the coat in week 2 of the sale?
You must show how you get your answer.

Week 1 £65 × 0·8 = £52

Week 2 −£10

£42

Maria does not have enough for the coat.

Specimen 1 – Paper 2F **(Total for Question 11 is 3 marks)**

11 There are men and women at a meeting.

There are 28 women.
30% of the people at the meeting are men.

Work out the total number of people at the meeting.

÷7 ↘ 70% = 28

10% = 4

100% = 40

40

November 2018 – Paper 3F **(Total for Question 11 is 3 marks)**

11 Jack's driving school has two offers.

Offer 1	Offer 2
First driving lesson free All other driving lessons normal price	All driving lessons 5% off the normal price

The normal price of a driving lesson is £24

Douglas is going to have 12 driving lessons.

Which is the cheaper offer for 12 driving lessons, Offer 1 or Offer 2?
You must show how you get your answer.

1 x free
11 x £24
= £264

12 x 24 = £288
288 x 0·95
= £273·60

Offer 1 is cheaper.

November 2017 – Paper 3F **(Total for Question 11 is 3 marks)**

11 Last year the cost of a season ticket for a football club was £560
This year the cost of a season ticket for the club has been increased to £600

Write down the increase in the cost of a season ticket as a fraction of last year's cost.

$\frac{40}{560} = \frac{1}{14}$

$\frac{1}{14}$

May 2018 – Paper 3F **(Total for Question 11 is 2 marks)**

11 214 people go on a school trip.
The people on the trip are either adults or children.

There are 14 adults on the trip.
35% of the children on the trip are wearing a hat.

Find the number of children on the trip who are **not** wearing a hat.

14 adults 200 children

0·35 × 200 = 70 children wearing a hat

200 - 70 = 130

130

(Total for Question 11 is 4 marks)

12 Elena spent 120 minutes at a sports centre.

She played badminton for 50 minutes.

She used the swimming pool for $\frac{1}{6}$ of the 120 minutes.

She used the gym for 20% of the 120 minutes.
She then spent the rest of the 120 minutes in the cafe.

(a) Work out the total time, in minutes, that Elena spent in the cafe.

$\frac{1}{6}$ of 120 = 20 minutes at the pool

20% of 120 = 24 minutes at the gym

$$\begin{array}{r} 50 \\ 20 \\ +\ 24 \\ \hline 94 \end{array} \qquad \begin{array}{r} {}^{1}\cancel{120}^{10} \\ -\ 94 \\ \hline 26 \end{array}$$

26 minutes

(4)

Elena got to the sports centre at 1.30pm.
She had asked her friend to meet her in the cafe at 3pm.

(b) Did Elena get to the cafe by 3pm?
Give a reason for your answer.

94 = 1hour and 34 minutes

1:30pm ⟶ 3:04pm

No she did not get there by 3pm

(1)

(Total for Question 12 is 5 marks)

13 Ryan and Carl each get paid a basic pay of £60 per day.

One day, Ryan also gets a bonus of 25% of his basic pay.
Carl also gets £20 in tips from customers.

Work out the difference between the total amounts of money that Ryan and Carl each get.

100% = 60
50% = 30
25% = 15

Ryan = £15
Carl = £20

£5

Specimen 2 – Paper 1F **(Total for Question 13 is 3 marks)**

13 In the Northern hemisphere the ratio of the area of land to the area of water is 2 : 3

(a) Work out what percentage of the area of the Northern hemisphere is land.

L OO $\frac{2}{5}$ = 40%
W OOO $\frac{3}{5}$ = 60%

40 %

(2)

20% of the area of the Southern hemisphere is land.

(b) Work out the ratio of the area of land to the area of water in the Southern hemisphere.

20% : 80%
2 : 8
1 : 4

1 : 4

(2)

November 2021 – Paper 3F **(Total for Question 13 is 4 marks)**

14 Gavin, Harry and Isabel each earn the same monthly salary.

Each month,

Gavin **saves** 28% of his salary and spends the rest of his salary

Harry spends $\frac{3}{4}$ of his salary and **saves** the rest of his salary

the amount of salary Isabel saves : the amount of salary she spends = 3 : 7

Work out who saves the most of their salary each month.
You must show how you get your answer.

	Saves	spends
Gavin	28%	72%
Harry	$\frac{1}{4}$ = 25%	$\frac{3}{4}$ = 75%
Isabel	$\frac{3}{10}$ = 30%	$\frac{7}{10}$ = 70%

Isabel saves the most each month

May 2018 – Paper 1F **(Total for Question 14 is 4 marks)**

15 Work out 15% of 160 grams.

10% = 16
+ 5% = 8
15% = 24

24 grams

May 2018 – Paper 1F **(Total for Question 15 is 2 marks)**

15 Which is greater

15% of 88 **or** 20% of 62?

You must show all your working.

0.15×88

$= 13.2$

0.2×62

$= 12.4$

15% of 88 is greater

$13.2 > 12.4$

(Total for Question 15 is 3 marks)

15 Martha and Nabeel share £120

Martha gets 72% of the money.
She spends 30% of the money she gets.

How much money does Martha have left?

$0.72 \times £120 = £86.40$ (Martha)

$0.3 \times £86.40 = £25.92$

$86.40 - 25.92 = 60.48$

£ 60.48

November 2023 – Paper 2F

(Total for Question 15 is 3 marks)

15 There are only red buttons, yellow buttons and orange buttons in a jar.
The number of red buttons, the number of yellow buttons and the number of orange buttons are in the ratio 7 : 4 : 9

Work out what percentage of the buttons in the jar are orange.

R : Y : O

7 4 9 = 20

$\frac{7}{20}$ $\frac{4}{20}$ $\frac{9}{20}$

$\frac{9}{20} = \frac{45}{100}$

45 %

November 2017 – Paper 1F

(Total for Question 15 is 2 marks)

15 There are 800 students at a school.
Each student has either a school dinner or a packed lunch.

31% of the students have packed lunches.

55% of the students are boys.
60% of the boys have school dinners.

How many girls have packed lunches?
You must show all your working.

$0.31 \times 800 = 248$ packed lunch

$0.55 \times 800 = 440$ boys

$0.6 \times 440 = 264$ boys - school dinners

$440 - 264 = 176$ boys - packed lunch

$248 - 176 = 72$

72

(Total for Question 15 is 4 marks)

16 An exam has two papers, Paper 1 and Paper 2

Paper 1 has 60 marks.
Paper 2 has 90 marks.

Total = 150 marks

The pass mark is $\frac{2}{3}$ of the total number of marks.

Danielle gets 70% of the marks for Paper 1

How many of the marks for Paper 2 must Danielle get in order to get the pass mark?

$\frac{2}{3}$ of 150 = 100 marks is a pass

Paper 1
$0.7 \times 60 = 42$ marks

She must get $\frac{58}{90}$ on paper 2

58

.....

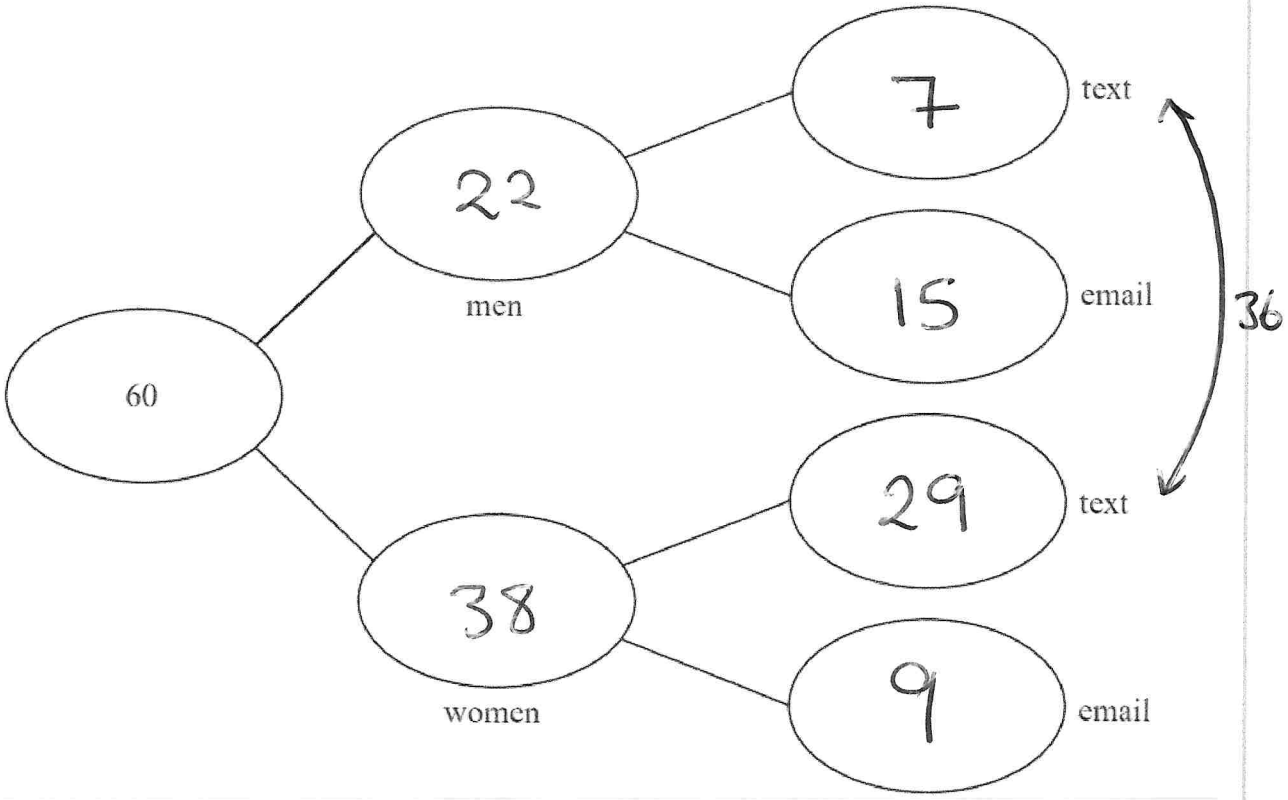
(Total for Question 16 is 4 marks)

17 60 people are asked if they prefer to text or to email their friends.

38 of the people are women and the rest are men.
15 of the men prefer to email their friends.
60% of the people prefer to text their friends.

Complete the frequency tree for this information.

100% = 60
10% = 6
60% = 36



(Total for Question 17 is 5 marks)

17 In a shop, a TV has a normal price of £500
The shop has a sale.

On Monday, the normal price of the TV is reduced by $\frac{1}{10}$ to give the sale price.

On Tuesday, the sale price of the TV is reduced by 20%

Chris wants to buy the TV.
He has £400 to spend on the TV.

Does Chris have enough money to buy the TV on Tuesday?
You must show how you get your answer.

$\frac{1}{10}$ of 500 = 50

On monday the TV = £450

100% = 450
10% = 45
20% = 90

$$\begin{array}{r} {}^{3}\not{4}50 \\ -\ 90 \\ \hline 360 \end{array}$$

On tuesday the TV = £360

Yes Chris has enough to buy the TV

(Total for Question 17 is 5 marks)

17 There are 200 counters in a bag.

38 counters are red.
52 counters are blue.

The rest of the counters are yellow or green.
There are the same number of yellow counters as green counters.

What percentage of the counters in the bag are yellow?

Red Blue Yellow Green

$38 + 52 + x + x = 200$

$90 + 2x = 200$

$2x = 110$

$x = 55$

$\frac{55}{200} = \frac{27.5}{100}$

27.5 %

(Total for Question 17 is 4 marks)

17 Emily buys a pack of 12 bottles of water.
The pack costs £5.64

Emily sells all 12 bottles for 50p each.

Work out Emily's percentage profit.
Give your answer correct to 1 decimal place.

$12 \times 50p = £6$

$$\frac{6}{5.64} = 1.0638 = 106.38\%$$

6.4 %

November 2017 – Paper 2F **(Total for Question 17 is 3 marks)**

17 Irena sells ice creams.
One day she sells 80 ice creams.
The next day she sells 108 ice creams.

Work out the percentage increase in the number of ice creams she sells.

$$\frac{108}{80} = \frac{54}{40} = \frac{27}{20} = \frac{135}{100} = 135\%$$

÷2 ÷2 ×5

35 %

Specimen 2 – Paper 1F **(Total for Question 17 is 3 marks)**

17 Amelia, Hayden and Sophie did a test.
The total for the test was 75 marks.

Amelia got 56% of the 75 marks.

Hayden got $\frac{8}{15}$ of the 75 marks.

Sophie got 43 out of 75

Who got the highest mark?
You must show all your working.

Amelia $0.56 \times 75 = 42$ marks

Hayden $\frac{8}{15} \times 75 = 40$ marks

Sophie $= 43$ marks

Sophie got the highest mark.

(Total for Question 17 is 3 marks)

18 There are 500 passengers on a train.

$\frac{7}{20}$ of the passengers are men.

40% of the passengers are women.

The rest of the passengers are children.

Work out the number of children on the train.

49
500
−375
125

$\frac{7}{20}$ of 500 = 175 men

0·4 × 500 = 200 women

125

Specimen 1 – Paper 1F **(Total for Question 18 is 3 marks)**

18 Trevor buys a boat.
The cost of the boat is £14 200 plus VAT at 20%

Trevor pays a deposit of £5000
He pays the rest of the cost in 10 equal payments.

Work out the amount of each of the 10 payments.

14200 × 1·2 = £17040

− £5000

£12040 left to pay

12040 ÷ 10 = £1204

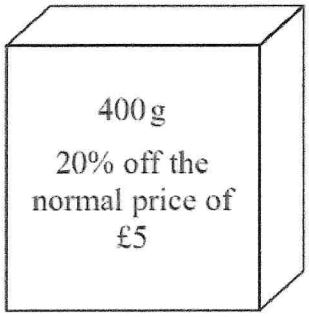
£ 1204

November 2018 – Paper 3F **(Total for Question 18 is 4 marks)**

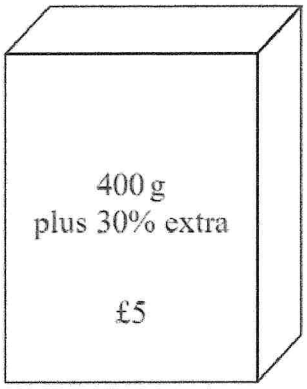
18 Food Mart and Jan's Store sell boxes of the same type of breakfast cereal.

Each shop has a special offer.

Food Mart



Jan's Store



Which box of cereal is the better value for money?
You must show your working.

100% = £5
10% = 50p
20% = £1

400g = £4 ÷4
100g = £1

100% = 400g
10% = 40g
30% = 120g

520g = £5 ÷5
104g = £1

Jans store is better value for money as you get more grams per £1.

November 2018 – Paper 1F

(Total for Question 18 is 4 marks)

18 Daniel bakes 420 cakes.
He bakes only vanilla cakes, banana cakes, lemon cakes and chocolate cakes.

$\frac{2}{7}$ of the cakes are vanilla cakes.

35% of the cakes are banana cakes.
The ratio of the number of lemon cakes to the number of chocolate cakes is 4 : 5

Work out the number of lemon cakes Daniel bakes.

$\frac{2}{7}$ of 420 = 120 vanilla

$0.35 \times 420 = 147$ banana

$120 + 147 = 267$ $\quad 420 - 267 = 153$

lemon ☐☐☐☐ 17 17 17 17
chocolate ☐☐☐☐☐ 17 17 17 17 17 } 153

lemon = 4 × 17
68

June 2017 – Paper 3F **(Total for Question 18 is 5 marks)**

18 Bill wants to increase 150 by 3%
He writes down

$$150 \times 1.3 = 195$$

Bill's method is wrong.

(a) Explain why.

He should have done 150×1.03
1.3 means 130%

(1)

Sally wants to decrease 150 by 3%

(b) Complete this statement to show how Sally can decrease 150 by 3%

$150 \times$ 0.97 $=$ 145.50

(1)

November 2018 – Paper 2F **(Total for Question 18 is 2 marks)**

18 Mrs Simpson organised a school trip for 66 children.

The total cost of the trip was £1800
The school paid 56% of the total cost.
The rest of the total cost was divided equally between the 66 children.

Work out how much money each child paid.

0·56 × 1800 = £1008 paid by the school

1800 - 1008 = £792 left to pay.

792 ÷ 66 = £12

£ 12

(Total for Question 18 is 3 marks)

19 Increase 240 by 20%

100% = 240
10% = 24
20% = 48

$$\begin{array}{r} 240 \\ +\ 48 \\ \hline 288 \end{array}$$

288

June 2022 – Paper 1F **(Total for Question 19 is 3 marks)**

19 Robin buys a watch for £80
He sells the watch for £56

Work out his percentage loss.

$$\frac{56}{80} = \frac{28}{40} = \frac{14}{20} = \frac{7}{10} = 0.7$$

÷2 ÷2 ÷2

30 %

November 2021 – Paper 1F **(Total for Question 19 is 3 marks)**

19 Here are the types of sandwiches sold in a cafe last week.

Sandwiches
Tuna
Cheese
Chicken
Egg

56 tuna sandwiches were sold.
This was 40% of the total number of sandwiches sold.

(a) Work out the total number of sandwiches sold.

56 = 40%
28 = 20%
14 = 10%
140 = 100%

140

(2)

Of the 56 tuna sandwiches sold, 18 were sold on Friday.

(b) Write 18 as a percentage of 56
Give your answer correct to the nearest whole number.

$\frac{18}{56} = 0.32142857$

32 %

(2)

(Total for Question 19 is 4 marks)

→ 3000g

19 Nimra buys a 3 kg box of sweets for £17.60

She puts the sweets into bags to sell.
Each bag contains 150 g of sweets.

Nimra fills as many bags as possible.
She will sell each bag for the same price.

Nimra wants to make a profit of at least 35%

Assuming she sells all the bags,
what is the lowest price Nimra should charge for each bag?

$\frac{3000}{150} = 20$ bags

£17.60 × 1.35 = £23.76

23.76 ÷ 20 = £1.188

= £1.19

£ 1.19

(Total for Question 19 is 5 marks)

20 Azmol is paid £1500 per month.
He is going to get a 3% increase in the amount of money he is paid.

Work out how much money Azmol will be paid per month after the increase.

100% = 1500
10% = 150
1% = 15
3% = 45

1500
+ 45
1545

£ 1545

June 2017 – Paper 1F **(Total for Question 20 is 2 marks)**

20 In a sale, normal prices are reduced by 20%.
The normal price of a coat is reduced by £15

Work out the normal price of the coat.

20% = 15
10% = 7.5
100% = 75

£ 75

Sample 1 – Paper 1F **(Total for Question 20 is 2 marks)**

21 Franco buys a house for £146 500
He sells the house for £158 220

Calculate the percentage profit Franco makes.

$\frac{158220}{146500} = 1.08$

8 ..... %

November 2019 – Paper 3F **(Total for Question 21 is 3 marks)**

21 Last year Jo paid £245 for her car insurance.
This year she has to pay £883 for her car insurance.

Work out the percentage increase in the cost of her car insurance.

$\frac{883}{245} = 3.604 = 360.4\%$

260.4 ..... %

November 2018 – Paper 3F **(Total for Question 21 is 3 marks)**

21 Jonny wants to know how much coffee he will need for 800 people at a meeting.

Each person who drinks coffee will drink 2 cups of coffee.
10.6 g of coffee is needed for each cup of coffee.

Jonny assumes 68% of the people will drink coffee.

(a) Using this assumption, work out the amount of coffee Jonny needs.
Give your answer correct to the nearest gram.

$0.68 \times 800 = 544$ coffee drinkers

$544 \times 2 = 1088$ cups of coffee

$1088 \times 10.6\text{g} = 11532.8\text{g}$

$= 11533\text{g}$

11533 g

(4)

Jonny's assumption is wrong.
72% of the people will drink coffee.

(b) How does this affect your answer to part (a)?

He will need more coffee.

(1)

(Total for Question 21 is 5 marks)

21 Renee buys 5 kg of sweets to sell. → 5000g
She pays £10 for the sweets.

Renee puts all the sweets into bags.
She puts 250 g of sweets into each bag.
She sells each bag of sweets for 65p.

Renee sells all the bags of sweets.

Work out her percentage profit.

$\frac{5000}{250} = 20$ bags

$20 \times 65p = £13.00$

$\frac{13}{10} = 1.3 = 130\%$

which is 30% profit.

30 %

(Total for Question 21 is 4 marks)

22 A bonus of £2100 is shared by 10 people who work for a company.
40% of the bonus is shared equally between 3 managers.
The rest of the bonus is shared equally between 7 salesmen.

One of the salesmen says,

"If the bonus is shared equally between all 10 people I will get 25% more money."

Is the salesman correct?
You must show how you get your answer.

100% = 2100
10% = 210
40% = 840

$3\overline{)840} = 280$

Each manager gets £280

$2100 - 840 = 1260$

$7\overline{)1260} = 180$

Each employee gets £180

Alternatively

£2100 ÷ 10 = £210

which is £30 more than the salesmen would have got.

100% = 180
10% = 18
20% = 36
5% = 9
25% = 45

He is incorrect as 25% is £45 not £30.

(Total for Question 22 is 5 marks)

23 Karen is organising a party for a charity.

She spends
£100 on food
£120 on a hall
£80 on a DJ.

$100 + 120 + 80$
$= £300$

Karen sells 54 tickets for the party.
Each ticket costs £7.50

Work out the percentage profit Karen makes for the charity.

$54 \times 7{\cdot}50 = £405$

$\frac{405}{300} = 1{\cdot}35 = 135\%$

35 %

November 2023 – Paper 2F **(Total for Question 23 is 4 marks)**

23

The value of Rita's house increased by 5%.
Her house then had a value of £210 000

(b) Work out the value of Rita's house before the increase.

$x \times 1{\cdot}05 = 210000$

$\frac{210000}{1{\cdot}05} = 200000$

£ 200000

(2)

June 2017 – Paper 3F **(Total for Question 23 is 2 marks)**

23 At the end of 2017

the value of Tamara's house was £220 000
the value of Rahim's house was £160 000

At the end of 2019

the value of Tamara's house had decreased by 20%
the value of Rahim's house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

Tamara

100% = 220000
10% = 22000
20% = 44000

$$\begin{array}{r} 220000 \\ -\ 44000 \\ \hline 176000 \end{array}$$

£176000 in 2019

Rahim

100% = 160000
10% = 16000
20% = 32000
30% = 48000

$$\begin{array}{r} 160000 \\ +\ 48000 \\ \hline 208000 \end{array}$$

£208000 in 2019

Rahims house had the greater value in 2019.

(Total for Question 23 is 4 marks)

23 A and B are two companies.

The table shows some information about the sales of each company and the number of workers for each company in 2004 and in 2014

	Company A		Company B	
	Sales (£ millions)	**Number of workers**	**Sales (£ millions)**	**Number of workers**
2004	320	2960	48	605
2014	388	3200	57	640

(a) Work out the percentage increase in sales from 2004 to 2014 for Company A.

$\frac{388}{320} = 1.2125 = 121.25\%$

21.25 %

(2)

(b) Which company had the most sales per worker in 2014, Company A or Company B?
You must show how you get your answer.

Company A

$\frac{388}{3200} = 0.1212 5$

0.121 million per worker

Company B

$\frac{57}{640} = 0.089 0625$

0.089 million per worker

Company A had the most sales.

(3)

Sample 1 – Paper 3F **(Total for Question 23 is 5 marks)**

23 Costcorp sells packets of mints to shop owners.

On Monday three shop owners buy mints from Costcorp.
Each shop owner buys small packets, medium packets and large packets of mints.

Alan buys 400 packets of mints.
32% are small packets.
40% are large packets.

Beryl buys 500 packets of mints.

$\frac{3}{10}$ are small packets.

$\frac{1}{10}$ are large packets.

Charlie buys 150 small packets of mints so that

number of small packets : number of medium packets = 3 : 4

Work out the total number of medium packets of mints these shop owners buy.
You must show all your working.

Alan = 400

0·32 × 400 = 128 small

0·4 × 400 = 160 large

Medium = 112

Beryl = 500

$\frac{3}{10}$ of 500 = 150 small

$\frac{1}{10}$ of 500 = 50 large

Medium = 300

Charlie

Small : medium

3 : 4

×50 (150 : 200)

Total medium

= 112 + 300 + 200

612

June 2019 – Paper 3F

(Total for Question 23 is 5 marks)

23 Raya buys a van for £8500 plus VAT at 20%

Raya pays a deposit for the van.
She then pays the rest of the cost in 12 equal payments of £531.25 each month.

Find the ratio of the deposit Raya pays to the total of the 12 equal payments.
Give your answer in its simplest form.

£8500 x 1·2 = £10,200

12 x £531·25 = £6375

10200 - 6375 = £3825 deposit

Deposit : total of 12 equal payments

3825 : 6375

3 : 5

3:5

(Total for Question 23 is 5 marks)

25 A company has 25 000 workers.
The number of workers increases at a rate of 6% per year for 3 years.

Calculate the total number of workers at the end of the 3 years.

$25000 \times 1.06^3 = 29775.4$

$= 29775$ workers

29775

(Total for Question 25 is 4 marks)

25 Jo is going to buy 15 rolls of wallpaper.

Here is some information about the cost of rolls of wallpaper from each of two shops.

Chic Decor	**Style Papers**
3 rolls for £36	Pack of 5 rolls normal price £70 12% off the normal price

Jo wants to buy the 15 rolls of wallpaper as cheaply as possible.

Should Jo buy the wallpaper from Chic Decor or from Style Papers?
You must show how you get your answer.

Chic Decor

(x5)

5 x £36
= £180
for 15 rolls

Style papers

(x3)

3 x £70
= £210
210 x 0.88
= £184.80
for 15 rolls

Chic Decor is cheaper to buy the 15 rolls of wall paper

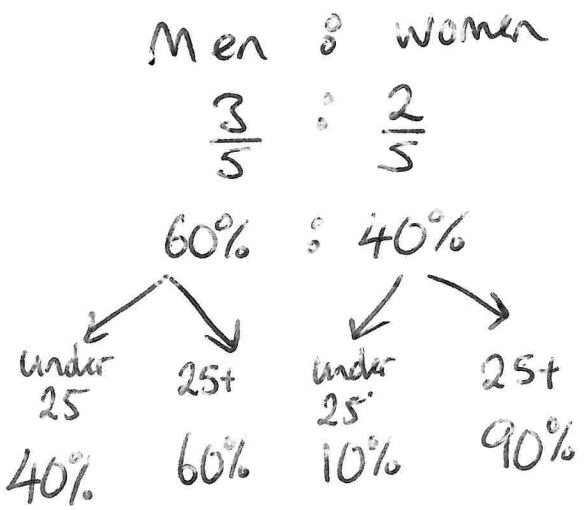
180 < 184.80

(Total for Question 25 is 4 marks)

25 In a company, the ratio of the number of men to the number of women is 3 : 2

40% of the men are under the age of 25
10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?



men
40% of 60%
= 24%

women
10% of 40%
= 4%

28 %

Sample 1 – Paper 1F

(Total for Question 25 is 4 marks)

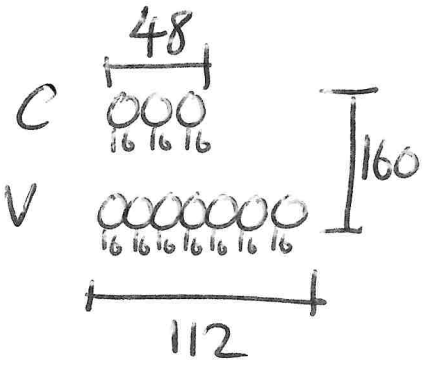
25 A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$ of the cars use electricity.
25% of the cars use diesel.
The rest of the cars use petrol.

Work out the number of cars that use petrol.
You must show all your working.



$\frac{1}{8}$ of 48 = 6 cars use electricity

25% of 48 = 24 cars use diesel

48 − 30 = 18 cars use petrol

18

(Total for Question 25 is 5 marks)

26 The population of a town increased by 9% between 2018 and 2019
The population in 2019 was 165 680

Calculate the population in 2018

$x \times 1.09 = 165680$

$\frac{165680}{1.09} = 152000$

152000

November 2022 – 2F **(Total for Question 26 is 2 marks)**

25 Last year a family recycled 800 kg of household waste.
57% of this waste was paper and glass.

weight of paper recycled : weight of glass recycled = 12 : 7

Calculate the weight of glass the family recycled.

$0.57 \times 800 = 456$ kg paper and glass

Paper 24 24 24 24 24 24 24 24 24 24 24 24 | 456

Glass 24 24 24 24 24 24 24 | 168

168 kg

June 2023 – Paper 2F **(Total for Question 25 is 3 marks)**

27 In a sale, normal prices are reduced by 30%

The sale price of a TV is £280

Work out the normal price of the TV.

$x \times 0.7 = 280$

$\frac{280}{0.7} = \frac{2800}{7} = 7\overline{)2800}$ 400

£ 400

May 2024 – Paper 1F **(Total for Question 27 is 2 marks)**

28 In a sale, the normal price of a boat is reduced by 15%
The sale price of the boat is £272 000

Work out the normal price of the boat.

$x \times 0.85 = 272000$

$\frac{272000}{0.85} = \frac{27200000}{85}$

$85 \overline{)27200000} = 320000$

£ 320000

November 2021 – Paper 1F **(Total for Question 28 is 2 marks)**

30 The value of Michelle's car has decreased by 15%
The car now has a value of £13 600

Work out the value of Michelle's car before the decrease.

$x \times 0.85 = 13600$

$\frac{13600}{0.85} = 16000$

£ 16000

June 2022 – Paper 3F **(Total for Question 30 is 2 marks)**

30 In a sale, the normal price of a book is reduced by 30%.
The sale price of the book is £2.80

Work out the normal price of the book.

$x \times 0.7 = £2.80$

$\frac{2.80}{0.7} = \frac{28}{7} = 4$

£ 4

November 2017 – Paper 1F **(Total for Question 30 is 2 marks)**