

GCSE Foundation Tier Paper 2/3 preparation

How to use this booklet:

- Pick a topic (Choose one that you are not 100% confident on)
- Complete the questions
- Scan the QR code to view the worked solutions
- If you still don't feel confident go to one of the useful websites listed below and find some similar questions

Useful websites with exam practice and worked/video solutions:

<https://www.1stclassmaths.com/aqarevision>

<https://www.old.mathsgenie.co.uk/gcse.php>

<https://corbettmaths.com/2026/05/15/aqa-paper-2-and-3-june-2026/>



Scan for worked
solutions

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Types of Number : Square, Cube, Prime, Odd, Even

Q1.

c and d are positive numbers.

c is even.

d is odd.

Tick **one** box for each expression.

	Even	Odd	Cannot tell
$c + d$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$4c$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$\frac{c}{2}$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Total 3 marks)

Q2.

Here is a card from a game.

	13		32
8		27	
	15		36

Write down the number **from the card** that is a prime number.

Answer _____

(Total 1 mark)

Q3. Two prime numbers are multiplied together.

The answer is an **even** number between 50 and 60

Complete the calculation.

$$\square \times \square = \square$$

(Total 3 marks)

Q4. 20 2 -4 36 8

Write down the number **from the list** that is a square number.

Answer _____

(Total 1 mark)

Q5. The first two cube numbers are 1 and 8

Show that

the 3rd cube number can be written as the sum of three different prime numbers.

$$\square = \square + \square + \square$$

(Total 3 marks)

Gradients, Intercepts, $y=mx+c$

Q6. A line has the equation $y = 3x - 5$

(a) Write down the gradient of the line.

Answer _____

(1)

(b) Write down the y -intercept of the line.

Answer _____

(1)

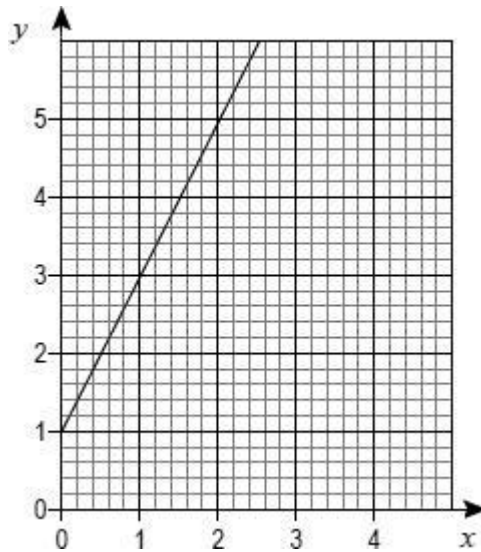
(Total 2 marks)

Q7. Write down the equation of a straight line parallel to $y - 2x = 9$

Answer _____

(Total 1 mark)

Q8. Here is a graph of a straight line.



(a) Work out the equation of the line.

Answer _____

(2)

(b) Work out the coordinates of the y -intercept of the line that
is parallel to the line in part (a)
and passes through (2, 2)

Answer (_____ , _____)

(2)

(Total 4 marks)

Q9. A straight line

- has gradient 5
- passes through the point (3, 7)

Circle the equation of the line.

$y = 3x - 2$

$y = 3x + 7$

$y = 5x$

$y = 5x - 8$

(Total 1 mark)

Factors and multiples

Q10. Write down **all** the factors of 20

Answer _____

(Total 2 marks)

Q11. 14 80 400 8 25

Write down the number **from the list** that is a factor of 40

Answer _____

(Total 1 mark)

Q12. Mica says,

“When two multiples of 5 are added, the answer is always a multiple of 10”

Give **one** example to show that he is wrong.

(Total 1 mark)

Q13. 51 512 0.5 15 56

Write down the number **from the list** that is a multiple of 5

Answer _____

(Total 1 mark)

Direct Proportion

Q14.

In total, the cost of 40 cartons of apple juice and 20 cartons of orange juice is £21.50

Work out the cost of

4 cartons of apple juice and 2 cartons of orange juice.

Answer £ _____

(Total 2 marks)

Q15.

The total cost of broadband for 5 months is £99.20

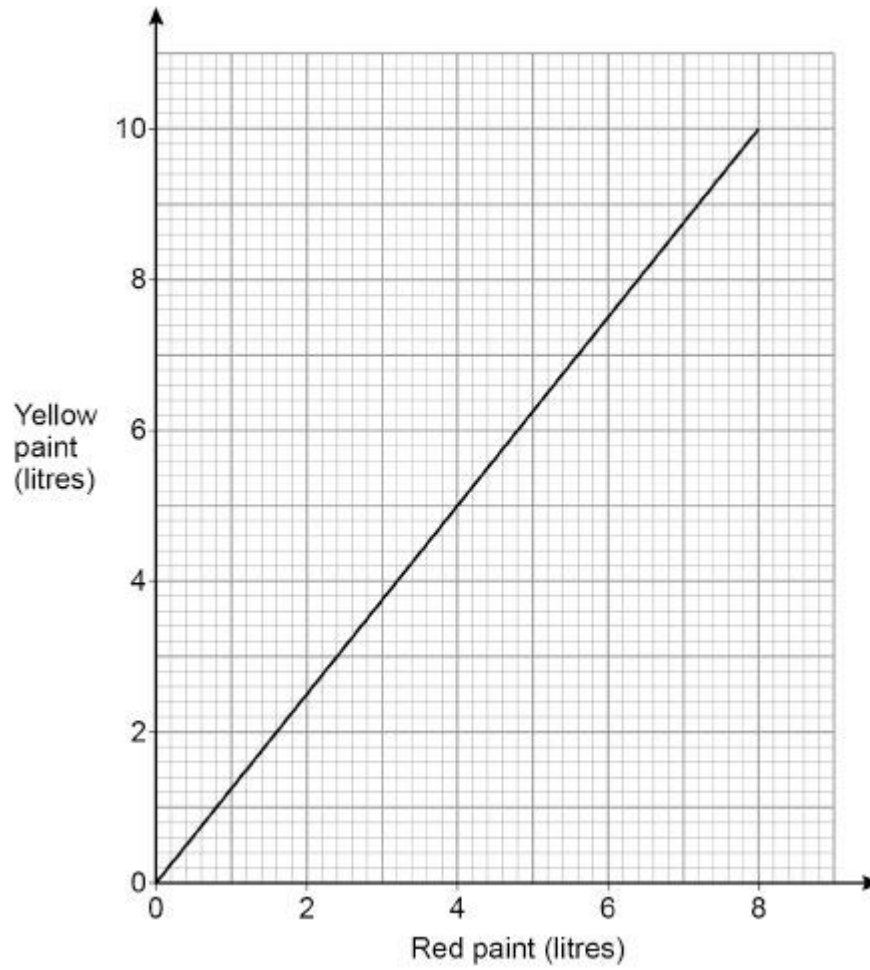
At the same monthly rate, work out the total cost of broadband for 2 **years**.

Answer £ _____

(Total 3 marks)

Q16.

Ola and Pip make orange paint by mixing red paint and yellow paint.
The graph shows how much of each colour paint to use.



- (a) Ola uses 5 litres of yellow paint.

Write down how much **red** paint Ola **uses**.

Answer _____ litres

(1)

- (b) Pip uses 10 litres of yellow paint.

How much **orange** paint does Pip **make**?

Answer _____ litres

(2)

(Total 3 marks)

Q19.

A window cleaner uses this formula.

$$C = 2W + 5$$

C = cost, in £, for the customer

W = number of windows to be cleaned

- (a) How much does it cost for 6 windows to be cleaned?

Answer £ _____

(2)

- (b) The cost for another customer was £24

Show why this cost **must** be incorrect.

(1)

(Total 3 marks)

Q20.

Work out the value of $2(3x - 5y)$ when $x = 4$ and $y = -2$

Answer _____

(Total 2 marks)

Q21.

$$d = g^2 - 2h$$

Work out the value of d when $g = 15$ and $h = 63$

$$d = \underline{\hspace{10em}}$$

(Total 2 marks)

Q22.

A shopkeeper uses this formula to work out the cost of bags of oranges.

$$C = 1.8 \times n$$

C is the cost in £

n is the number of bags

- (a) Work out the cost of 5 bags.

$$\text{Answer } \pounds \underline{\hspace{10em}}$$

(2)

- (b) There are three oranges in each bag.

Work out the cost of **one** orange if they each cost the same.

Give your answer in pence.

$$\text{Answer } \underline{\hspace{10em}} \text{ pence}$$

(2)

(Total 4 marks)

Use of scales on a map or a ratio

Q23. A map has a scale of 1 : 4000

On the map, the distance from a station to a museum is 7 cm

Is the **actual** distance from the station to the museum **more** than 300 m?

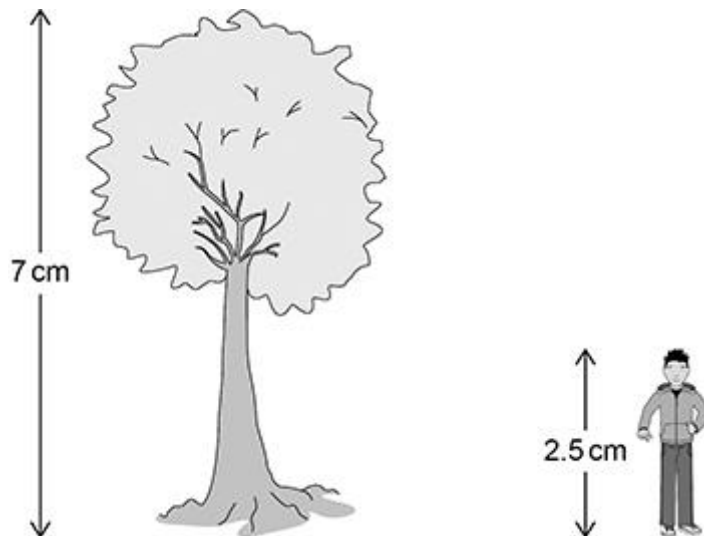
Tick a box.

Yes No

Show working to support your answer.

(Total 3 marks)

Q24. The scale drawing shows a tree and a student.



The actual height of the tree is 4.2 metres.

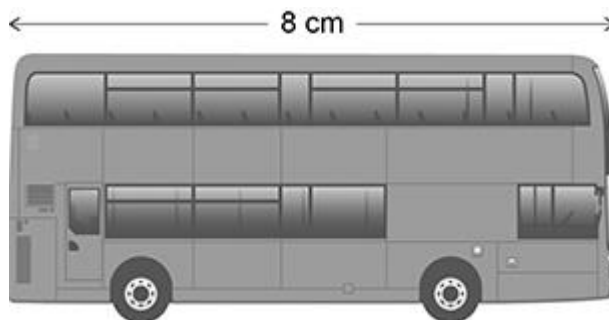
Work out the actual height of the student.

Answer _____ m

(Total 3 marks)

Q25.

This scale drawing of a bus has length 8 cm



Scale 1 cm represents 1.65 m

The actual length of the bus is 3.8 times the actual length of a car.

Work out the actual length of the car.

Give your answer in metres, to the nearest centimetre.

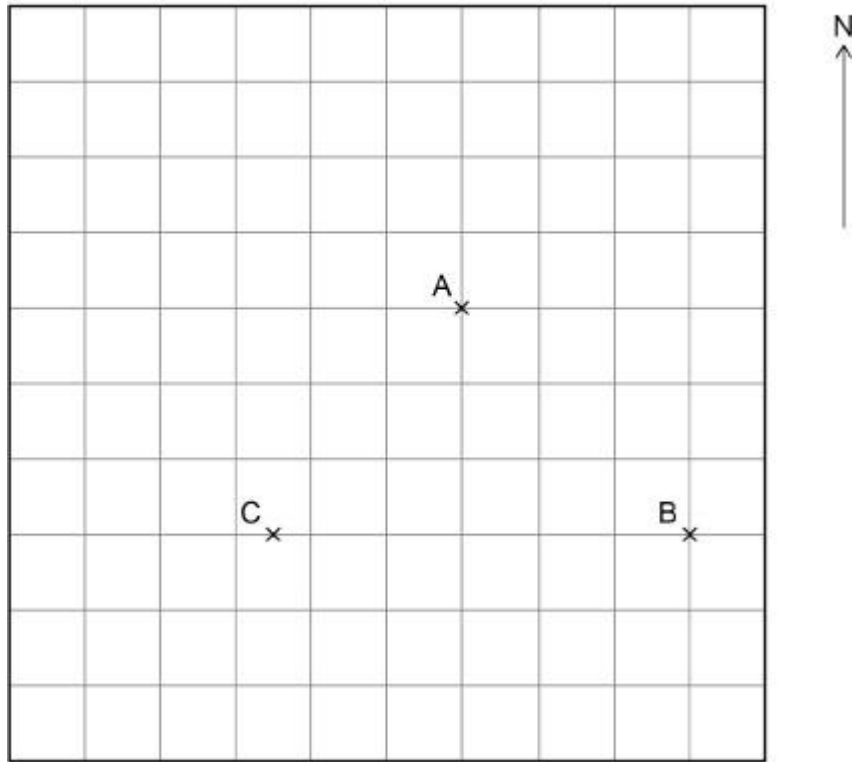
Answer _____ metres

(Total 3 marks)

Q26.

Here is a scale diagram showing towns A, B and C on a centimetre grid.

Scale 1 : 200 000



Work out the **actual** distance from B to C.

Give your answer in kilometres.

Answer _____ km
(Total 4 marks)

Q27.

On a map the distance between two towns is 5 cm.
The actual distance is 2 km.

Work out the scale of the map as a ratio in its simplest form.

Answer _____ : _____
(Total 3 marks)

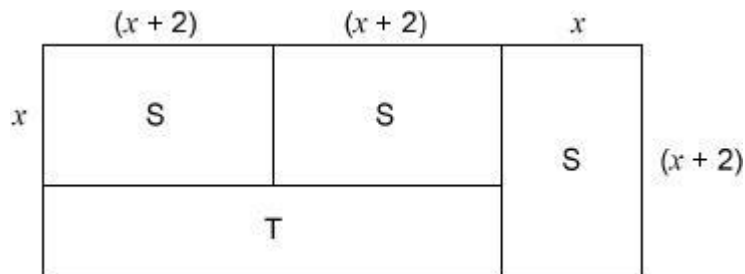
Forming Equations and Formulae

Q28. S and T are rectangles.

S has dimensions $(x + 2)$ and x .

Some of these rectangles make the larger rectangle shown.

Not drawn accurately



Work out an expression for the perimeter of T.

Give your answer in its simplest form.

Answer _____
(Total 3 marks)

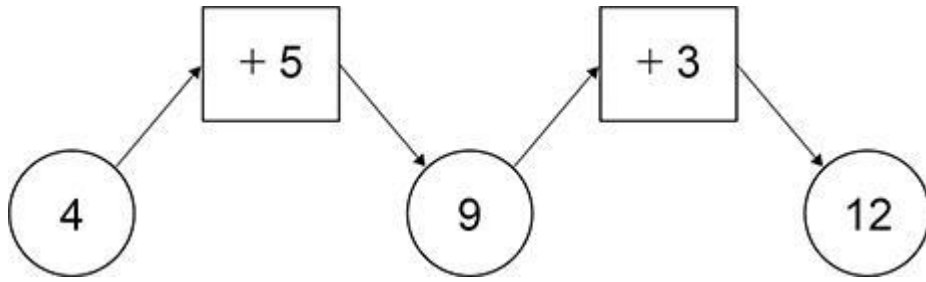
Q29. The total cost of a taxi ride is calculated by adding
a fixed charge of £4
and
a charge of £2 per mile.

Write a formula to work out the total cost, £ C , of a journey of m miles.

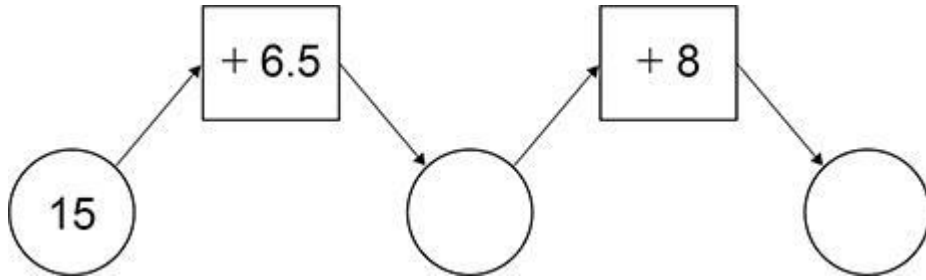
$$C = \underline{\hspace{10em}}$$

(Total 2 marks)

Q30. Here is a diagram.

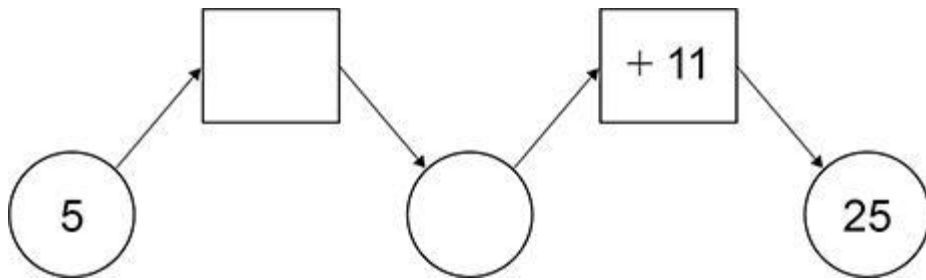


(a) Complete this diagram.



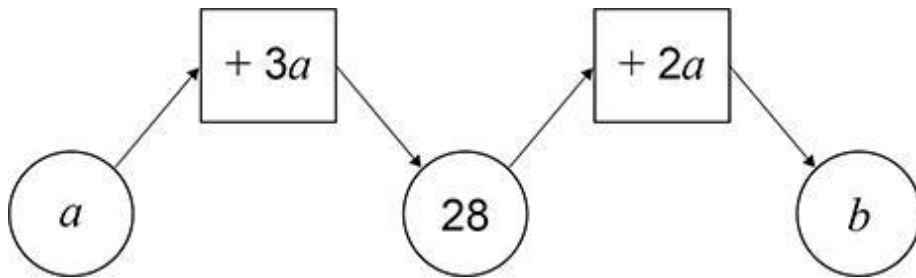
(1)

(b) Complete this diagram.



(2)

(c)



Work out the value of b .

$b =$ _____ (3)

(Total 6 marks)

Q31. I am thinking of a number (n).

I subtract 3 from my number.
I divide the answer by 5
My final answer is 2

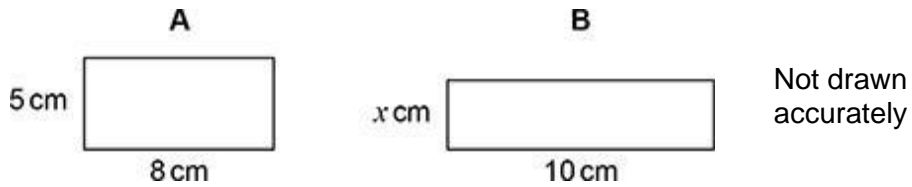
Work out my final answer if I add 7 to my number (n) and then divide by 4

Answer _____

(Total 4 marks)

Area of Shapes

Q32. These two rectangles have the **same area**.

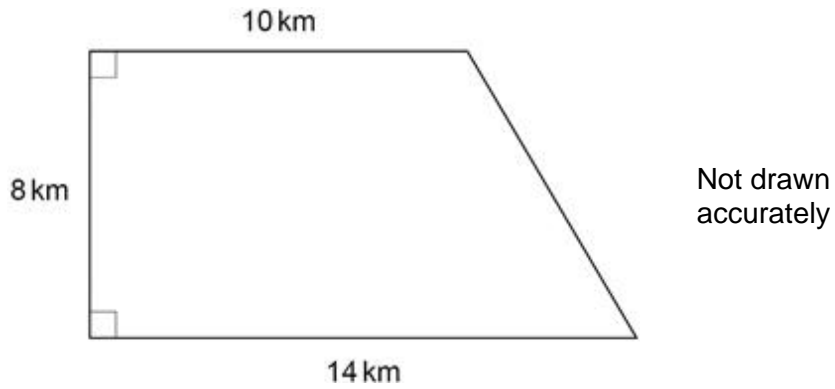


Work out the ratio perimeter A : perimeter B

Answer _____ : _____

(Total 4 marks)

Q33. The boundaries of a city form a trapezium.



$$\text{Population density} = \frac{\text{number of people}}{\text{area}}$$

The population density of the city is 9450 people per square kilometre.

Work out the number of people who live in the city.

Answer _____

(Total 4 marks)

Money Problems

Q34. Luca spends 71p

He pays the exact amount with 4 coins.

List the coins he uses.

Answer _____

(Total 2 marks)

Q35.

Annie spends these amounts in four shops using £20 notes, £10 notes and £5 notes.

Shop A	£65
Shop B	£40
Shop C	£115
Shop D	£75

In each shop she

pays the exact amount

uses the **smallest** possible number of notes.

Work out the total number of each note she uses.

Number of £20 notes _____

Number of £10 notes _____

Number of £5 notes _____

(Total 3 marks)

Fractions, Decimals and Percentages

Q36.

Complete the table to show equivalent fractions, decimals and percentages.

Fraction	Decimal	Percentage
	0.5	50%
$\frac{1}{10}$		10%
$\frac{2}{5}$	0.4	

(Total 3 marks)

Q37.

Write 0.27 as a fraction.

Answer _____
(Total 1 mark)

Q38.

Complete each statement using **one** of these symbols.

	<	=	>
2.54	_____		2.508
0.25	_____		$\frac{1}{4}$
2	_____		$\frac{5}{2}$

(Total 3 marks)

Q39.

Work out $\frac{9}{4}$ as a decimal.

Answer _____
(Total 1 mark)

Writing as ratio (including form 1:n)

Q40.

There are 30 students in a class.
12 of the students have school lunch.

Work out the ratio

students having school lunch : students not having school lunch

Give your answer in its simplest form.

Answer _____ : _____
(Total 2 marks)

Q41.

Kai says that $3 : 2$ is an equivalent ratio to $9 : 6$

Jo says that $1.5 : 1$ is an equivalent ratio to $9 : 6$

Who is correct?

Tick **one** box.

Both of them

Kai only

Jo only

Neither of them

Give reasons for your answer.

(Total 2 marks)

Q42.

Write the ratio $6 : 2$ in the form $n : 1$

Answer _____ : 1

(Total 1 mark)

Simplifying algebraic expressions

Q43.

Simplify fully $2m \div m$

Answer _____

(Total 1 mark)

Q44.

Multiply out $3(2x + 8)$

Answer _____

(Total 2 marks)

Q45.

Simplify fully $y \times y \times y$

Answer _____

(Total 1 mark)

Q46.

Simplify fully $5 \times 2w$

Answer _____

(Total 1 mark)

Q47.

Simplify fully $x + 4x$

Answer _____

(Total 1 mark)

Q48.

Write the ratio $6a : 5a$ in the form $n : 1$ where n is a **decimal**.

Answer _____ : 1

(Total 2 marks)

Q49.

Simplify fully $4(a + 2) + a$

Answer _____

(Total 2 marks)

Q50.

Simplify fully $\frac{20w}{4w}$

Answer _____

(Total 2 marks)

Fractions of Amount

Q51.

To get to college, 120 students either walk, cycle or travel by car.

$\frac{3}{8}$ of the students walk.

students who cycle : students who travel by car = 1 : 2

How many students travel by car?

Answer _____

(Total 3 marks)

Q52.

Work out $\frac{1}{4}$ of 780

Answer _____

(Total 1 mark)

Q53. One day,

- a company runs 240 trains
- $\frac{1}{8}$ of these trains are late.

The company is charged £350 for each late train.

How much is the company charged that day?

Answer £ _____

(Total 3 marks)

Probability

Q54.



At a lucky dip stall, players pick a ball at random from a tub and then **replace it**.

The tub contains 180 red balls
 170 yellow balls
 50 blue balls.

Caroline has a go at the lucky dip.

- (a) What is the probability that Caroline wins a prize with her first pick?

Answer _____

(2)

- (b) Caroline has 16 goes on the lucky dip and wins 3 prizes.

Is this **more** than the expected number?

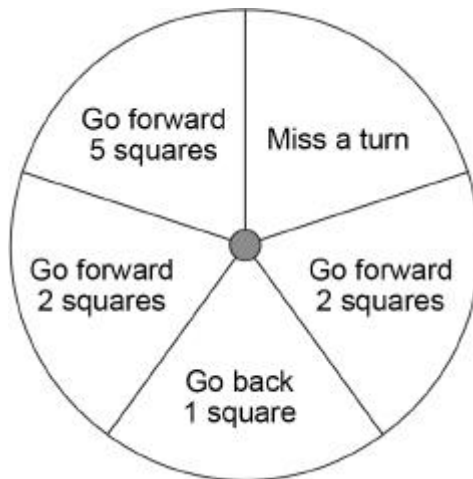
You **must** show your working.

Answer _____

(2)

(Total 4 marks)

Q55. In a game, a fair spinner has five equal sections as shown.



- (a) Chloe spins the spinner.
Write down the probability that she gets 'Miss a turn'.

Answer _____

(1)

- (b) The spinner lands on 'Go back 1 square' three times in a row.
Jamal is next to spin.
Write down the probability that he gets 'Go back 1 square'.

Answer _____

(1)

- (c) In one game there are 85 spins.

How many of these spins are expected to be 'Go forward 2 squares'?

Answer _____

(2)

(Total 4 marks)

Q56. An experiment is carried out 200 times.

The possible outcomes are K, L and M.

(a) Complete the table.

Outcome	K	L	M
Frequency	84	54	
Relative frequency	0.42		

(2)

(b) Altogether, the experiment is carried out 500 times.

How many times would you expect the outcome to be K?

Answer _____

(2)

(Total 4 marks)

Q57. An ordinary fair dice is rolled ten times.

Here are the first nine results.

6 1 3 2 1 5 5 5 5

Write down the probability of getting a 5 on the tenth roll.

Answer _____

(Total 1 mark)

Sequences

Q58. A linear sequence starts

4 7 10 13

Write down the next number in this sequence.

Answer _____ (Total 1 mark)

Q59.

Here is a sequence.

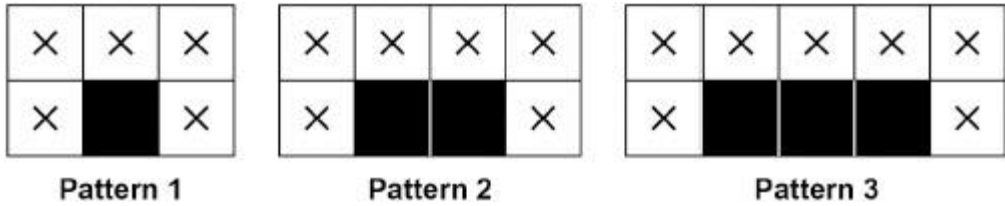
3 6 12 24

Write down the term-to-term rule for this sequence.

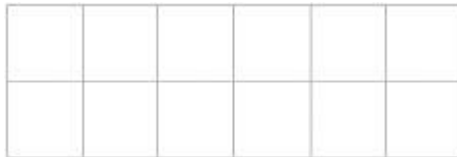
Answer _____
(Total 1 mark)

Q60.

Here are the first three patterns in a sequence.



Draw Pattern 4 on the grid.



(Total 1 mark)

Q61.

A linear sequence has

- 2nd term = 6
- 5th term = 18

Work out the n th term of the sequence.

Answer _____
(Total 3 marks)

Q62. Here is the term-to-term rule for a sequence.

Double the previous term and add 3

The first three terms of the sequence are $a + 1$ $2a + 5$ $4a + 13$

Show that the sum of the first **four** terms is a multiple of 3

(Total 3 marks)

% of Amount

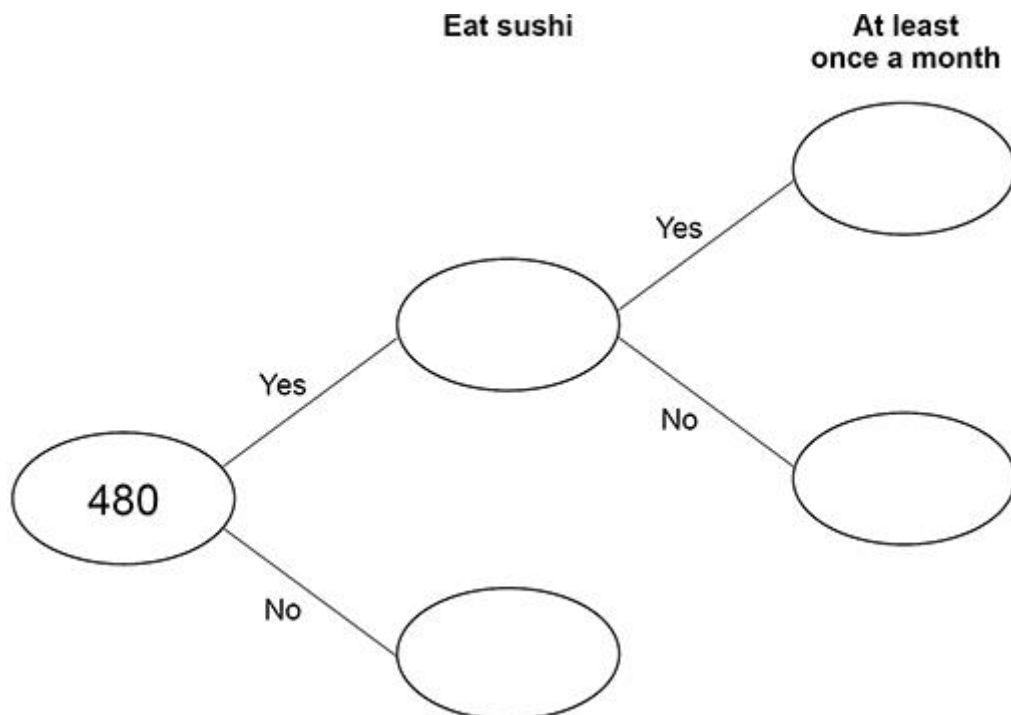
Q63.

480 people are asked if they eat sushi.

20% say Yes.

$\frac{2}{3}$ of the people who say Yes eat sushi at least once a month.

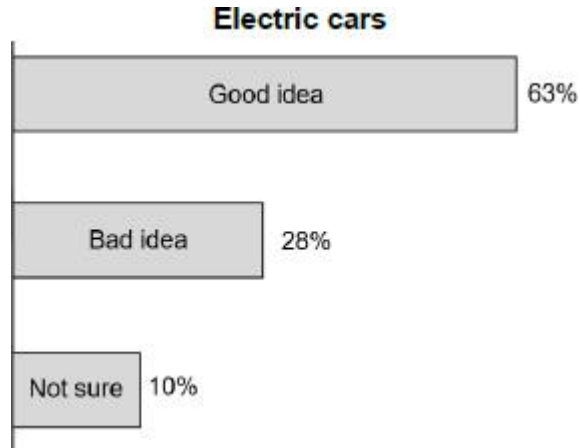
Complete the frequency tree.



(Total 4 marks)

Q64.

The diagram shows the results of a survey of 1200 British motorists.



- (a) How can you tell that the percentages are **not** exact figures?

(1)

- (b) Using the percentages given, how many of the motorists think electric cars are a bad idea?

Answer _____

(1)

- (c) The percentages in the survey are given to the nearest 1%

Work out the **smallest** possible number of motorists who thought electric cars were a good idea.

Answer _____

(2)

(Total 4 marks)

Averages (and range)

Q65.

Ingrid records the number of minutes she uses her mobile phone over four weeks.

140 168 205 192

Work out the range.

Answer _____ minutes
(Total 1 mark)

Q66.

Here is a list of five numbers.

5 9 4 16 8

An extra number is put into the list.

The **median** of the numbers is now 7

Work out the extra number.

Answer _____
(Total 2 marks)

Q67.

£4.56 is paid using the smallest possible number of coins.

What is the **modal value** of the coins used?

You **must** show your working.

Answer _____
(Total 2 marks)

Q68. Ingrid records the number of minutes she uses her mobile phone over four weeks.

140 168 205 192

Ingrid records the number of minutes for a fifth week.

The mean for all **five** weeks is 178 minutes.

Work out the number of minutes used in the fifth week.

Answer _____ minutes
(Total 3 marks)

Q69.

Hot drinks are sold at a station in the ratio

tea : coffee : hot chocolate = 3 : 5 : 2

2600 hot drinks are sold.

How many coffees are sold?

Answer _____
(Total 3 marks)

Q70. Paul leaves home at 7.15 am

He travels to work in 20 minutes.

Does Paul arrive at work by 7.30 am?

Tick a box

Yes No

Give a reason for your answer.

(Total 1 mark)

Q71a. The table shows information about two workers on one day.

	Total working time (hours)	Working time spent online (minutes)
Zeke	8	200
Margot	4	110

Zeke says he spent **more than one quarter** of his total working time online.

Is he correct?

Tick a box.

Yes No

Show working to support your answer.

(Total 3 marks)

Q71b.

Margot started work at 10:30 am

What time did she finish?

Answer _____

(Total 1 mark)

Solve Linear Equations

Q72.

Solve $4(2d - 5) = 28$

$d =$ _____

(Total 3 marks)

Q73.

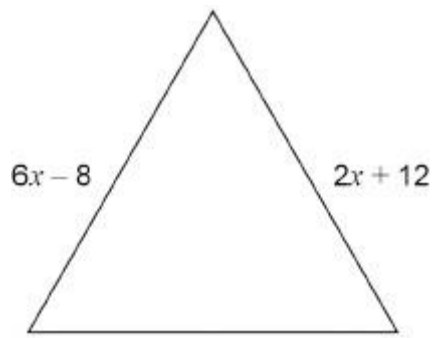
Solve $-2 + y = 10$

$y =$ _____

(Total 1 mark)

Q74. Here is an equilateral triangle.

All measurements are in centimetres.



Not drawn accurately

Work out the value of the perimeter of the triangle.

Answer _____ cm
(Total 4 marks)

Share in ratio / Apply ratio

Q75.

On a school trip, one teacher is needed for every group of 10 or fewer students.
72 students want to go on the trip.

Lexi tries to work out how many teachers are needed.

$72 \div 10 = 7.2$ 7 teachers are needed.
--

What is wrong with her answer?

(Total 1 mark)

Q76.

A sauce is made from cream and stock in the ratio

$$\text{cream} : \text{stock} = 1 : 6$$

How much **sauce** can be made using 80 millilitres of cream?

Answer _____ ml

(Total 2 marks)

Q77.

Jing has £2450

She saves some and gives the rest to her four brothers.

$$\text{money saved} : \text{money given to brothers} = 2 : 5$$

She gives each of her **four** brothers the **same** amount.

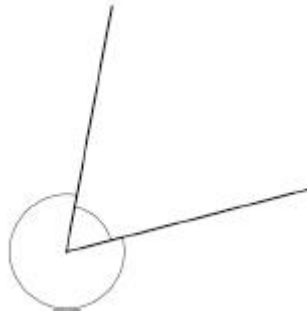
Does each brother receive more than £430 ?

You **must** show your working.

(Total 4 marks)

Q78.

Two angles around a point are shown.



Not drawn
accurately

The angles are in the ratio $2 : 7$

Show that the larger angle is 280°

(Total 2 marks)

END OF QUESTIONS