

Sur name	Centre Number	Candidate Number
First name(s)		0

GCSE EDUQAS

Mock Test Papers- Paper1 -Test1

MATHEMATICS – Component 1

Non-Calculator Mathematics

FOUNDATION TIER

2 hours 15 minutes

ADDITIONAL MATERIALS

An additional formulae sheet.

The use of a calculator is not permitted in this examination.

A ruler, protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the need for good English and orderly, clear presentation in your answers.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	7	
2.	3	
3.	5	
4.	3	
5.	3	
6.	4	
7.	6	
8.	5	
9.	4	
10.	3	
11.	5	
12.	8	
13.	3	
14.	7	
15.	2	
16.	5	
17.	6	
18.	6	
19.	3	
20.	2	
21.	7	
22.	6	
23.	5	
24.	3	
25.	6	
26.	3	
Total	120	

Formula list

Area and volume formulae

Where r is the radius of the sphere or cone, l is the slant height of a cone and h is the perpendicular height of a cone:

$$\text{Curved surface area of a cone} = \pi rl$$

$$\text{Surface area of a sphere} = 4\pi r^2$$

$$\text{Volume of a sphere} = \frac{4}{3}\pi r^3$$

$$\text{Volume of a cone} = \frac{1}{3}\pi r^2 h$$

Kinematics formulae

Where a is constant acceleration, u is initial velocity, v is final velocity, s is displacement from the position when $t = 0$ and t is time taken:

$$v = u + at$$

$$s = ut + \frac{1}{2}at^2$$

$$v^2 = u^2 + 2as$$

1. (a) Calculate each of the following.

(i) 5×800 [1]

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(ii) $800 \div 10000$ [1]

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(iii) $20 + 5 \times 4$ [1]

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(iv) $8 - (-9)$ [1]

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(b) (i) Write $\frac{13}{50}$ as a percentage [1]

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(ii) Write 94% as a decimal. [1]

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(c) Write down the value of $\sqrt{81}$. [1]

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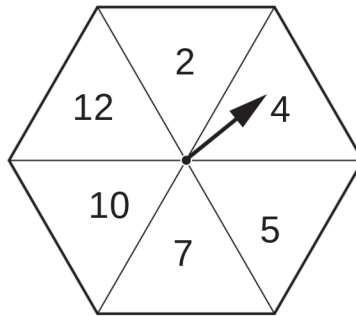
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2. (a) Circle **one** term from the box that matches the probability shown by arrow A on this probability scale. [1]

impossible unlikely an even chance likely certain

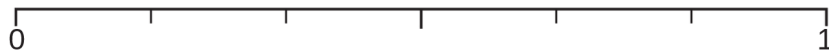


- (b) The diagram shows a fair spinner.

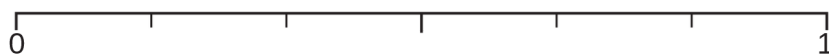


Athea spins the spinner once. On the probability scale below, mark with an arrow the probability that Athea spins

- (i) a number greater than 12, [1]



- (ii) an odd number. [1]



3. (a) Circle the smallest value.

[1]

$$\frac{1}{2}$$

0.75

0.235

$$\frac{3}{4}$$

0.7

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(b) Work out the value of the following.

$$30 + (50\% \text{ of } 95) - \left\{ \frac{1}{4} \text{ of } 32 \right\}$$

You must show all your working.

[4]

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4. Miss Jones picks a team of one girl and one boy to take part in a quiz.

She chooses the team from these students.

Girls: Emma (E), Grace (G), Lucy (L), Mia (M)

Boys: Jack (J), Sam (S)

- (a) Complete the list to show all the different options that Miss Jones has.
The first two have been completed for you. [2]

Girl	Boy
E	J
E	S

You may not need
all the lines.

- (b) Miss Jones is equally likely to choose any of the possible options.

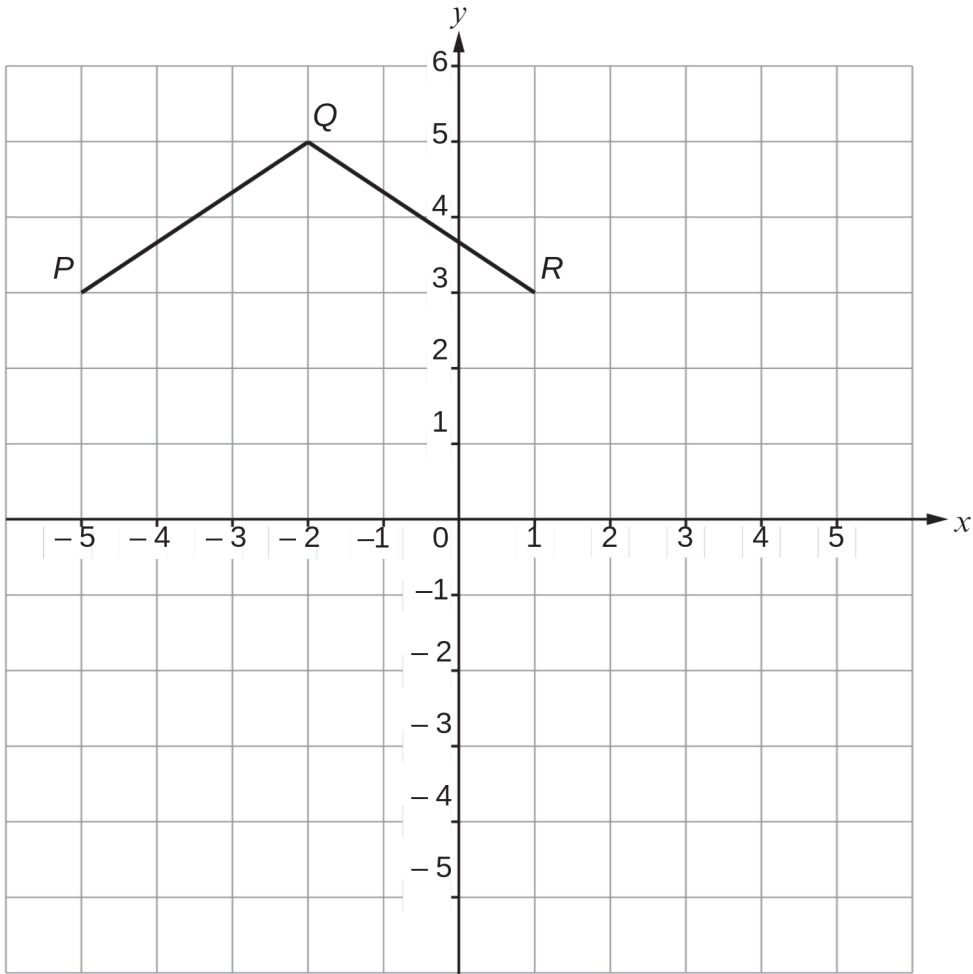
What is the probability that she chooses Lucy and Sam? [1]

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5.



The diagram shows part of a Kite , $PQR S$.
It is drawn on a 1 cm square grid.

- (a) Write down the coordinates of the point Q. [1]

(..... ,)

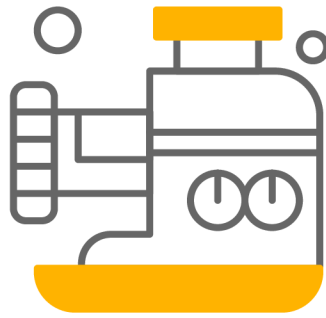
- (b) $PQRS$ has one line of symmetry.
The length of QS is 6cm.
Mark the position of point S on the grid and measure the length of RS . [2]

Length of RS = cm

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6.



A machine is used to fill bottles with juice.
The time it takes to fill a certain number of bottles is given by the formula:

$$\text{Time (in minutes)} = 1.8 \times \text{Number of bottles} + 12$$

- (a) How long does it take to fill 15 bottles of juice? [2]

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- (b) How many bottles can be filled in 30 minutes? [2]

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7. (a) In 2022, the cost of a flight ticket was €450.
 In 1992, the cost of the same flight ticket was 12% of the cost in 2022.
 How much did the flight ticket cost in 1992?

[2]

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(b)

<p><i>Saver Railcard</i></p> <p>adult ticket: 20% off *</p> <p>child ticket: 50% off*</p> <p><i>*discount off normal ticket price only</i></p>	
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Emma has a Saver Railcard.
 She takes her 10-year-old niece on a journey by train.
 For this journey, the normal price of

- an adult ticket is £20,
- a child ticket is £10.

How much does Emma **save** in total when buying the two tickets using her railcard?

[4]

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Total saving £

8. Maria works in a coffee shop.

- (a) On a weekday, her pay rate is £10 per hour.
One Tuesday, Maria worked for 5.5 hours.
How much did Maria earn for this day's work?

[2]

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- (b) At the weekend, Maria's pay rate is higher.
One weekend, she worked for 12 hours.
She earned a total of £240, which included £100 in tips.
What is Maria's pay rate per hour at the weekend?

[3]

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9. Emily sells small boxes of 5 apples or large boxes of 12 apples.

She sells y small boxes.

She sells 4 more large boxes than the small boxes.

- (a) Write an expression, in terms of y , for the number of large boxes she sells. [1]

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- (b) Write an expression, in terms of y , for the total number of apples she sells.
Give your answer in its simplest form [3]

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10. Work out the value of $\frac{4^3}{6^3}$.

Give your answer as a fraction in its simplest form. [3]

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11. (a) There are five children in the Johnson family.
Two of the children are the same age, while the other three children are different ages.

The range of their ages is 6 years.
The mode of their ages is 10 years.
The youngest child is 8 years old.

Find one possible solution for the ages of the other four children. [2]

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The ages could be 8,,,,

- (b) Ms. Patel takes her family out for dinner.
The list below shows the food they order:

- 2 Spaghetti Bolognese: £9.50 each
- 1 Margherita Pizza: £8.00
- 1 Veggie Pizza: £7.50
- 2 Chicken Alfredo: £10.00 each
- 1 Garlic Bread: £3.50

When she pays the bill, Ms. Patel uses a special offer:

Buy any 4 main dishes and get the 2 cheapest free.

Estimate the total amount of Ms. Patel's bill.
Give your answer correct to the nearest pound.
You must show all your working.

[3]

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12. (a) The total cost of the electricity Sam used in 2021 was £540.
To work out how much he should pay for electricity each month in 2022, his energy company divided this amount by 12.
How much did the energy company ask Sam to pay for electricity each month in 2022? [2]

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(b) Alex is working out the cost of his water bill.
His bill is for a period of 45 days.

During these 45 days, he:

- pays a fixed charge of 25 pence per day,
- uses a total of 600 liters of water.

Alex pays 10 pence for every liter of water he uses.
He pays VAT of 5% on the total of these costs.
How much is Alex's water bill?

[6]

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13.



Diagram not drawn to scale

Use: 1 pint = 600 ml

In a Bistro:

- A half-pint glass of Orange Juice costs £1.80.
- A 500ml bottle of Orange Juice costs £2.50.

Show that the bottle of Orange Juice is better value for money.

[3]

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14. (a) Liam invests £60,000 and Mia invests £40,000 in a new business.

(i) Write the ratio of Liam's investment to Mia's investment in its simplest form. [2]

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Liam : Mia= :

(ii) At the end of the first year, Liam and Mia shared the total profit made by the business in the ratio of their original investments.

Mia made £15,000 profit.

[3]

What is the difference in the amount of profit made by Liam and Mia?

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(b) The next year, the business makes a loss, and Mia decides to sell her share.

She loses all of her profit from the first year plus her original investment.

Calculate the amount of money Mia loses.

[2]

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15. Rearrange this formula to make n the subject.

[2]

$$t = 9 + 6n$$

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Examiner
only

16. The diagram shows a ship's journey from A to B to C.

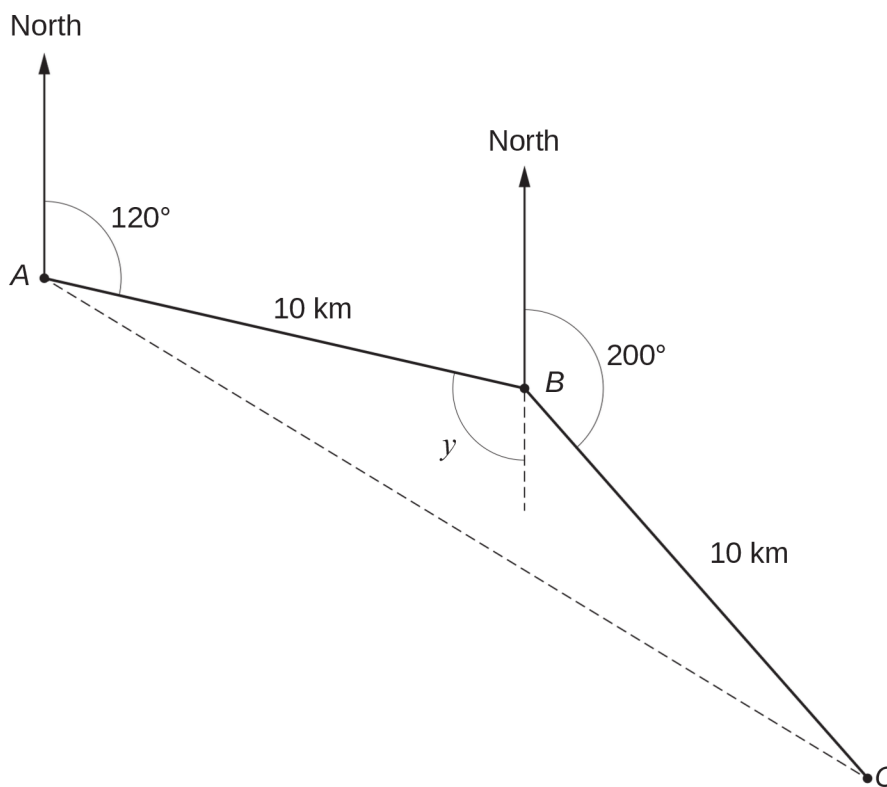


Diagram not drawn to scale

The ship travels on a bearing of 120° for 10 km from A to B.
It then travels on a bearing of 200° for 10 km from B to C.

(a) Explain why the angle y is 120° . [1]

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(b) Work out the bearing of C from A. [4]
Give a reason for each step of your answer.

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17. (a) At midday, the volume of milk produced by a dairy farm is 2.5×10^7 litres per minute.
At midday, what is the volume of milk produced by the dairy farm in litres per hour?
Give your answer in standard form.

[3]

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- (b) Maria is a graphic designer.
One working day, she spends 240 minutes of her time on designing.
This is $\frac{3}{5}$ of her working day.

For how many hours does Maria work on this day?

[3]

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18. (a) Find the next term of the following Fibonacci-type sequence.

[1]

2, 3, 5, 8, 13, 21, 34,

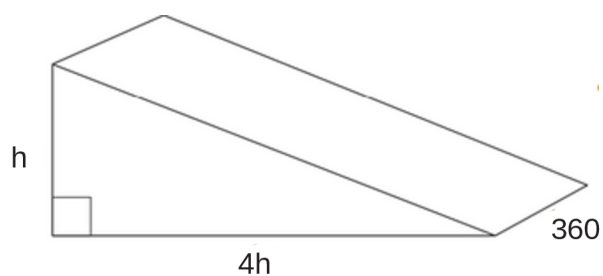
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(b) The diagram shows a prism.

[5]



The cross-section of the prism is a triangle with a height h and a base $4h$.
The volume of the prism is 360 cm^3 .
Use an algebraic method to find the height of the triangular cross-section.

19. In 2020,

- €1 = £0.85,
- \$1.30 = £1.

In 2020, A leather wallet costs €150 in Italy.
The same wallet costs \$180 in the USA.
In which country was the wallet cheaper?

Italy

USA



You must show all your working.

[3]

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20. The diagram shows a parallelogram, $PQRS$ and the diagonal PR .

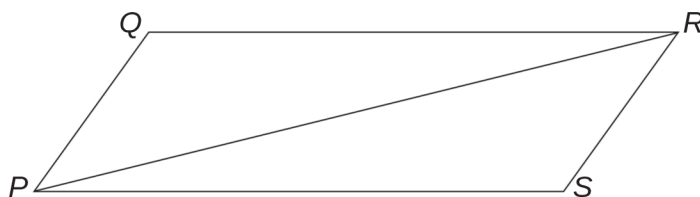


Diagram not drawn to scale

Tick (✓) the **two** correct statements.

[2]

\hat{PQR} is not equal to \hat{PSR}	
$PQ=SR$ and $PS=QR$ and PR is a side of both PQR and PSR	
Triangle PQR is similar to triangle PSR with enlargement scale factor 0.5	
Triangle PQR is not congruent to triangle PSR	
Triangle PQR is congruent to triangle PSR	
PQ represents the shortest distance from Q to PR .	

21. The diagram shows a cone placed with its circular base on a table.

It has

- base radius 10 cm,
- height 25 cm.

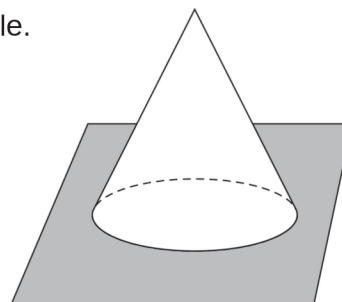


Diagram not drawn to scale

- (a) Work out the volume of this cone.
Give your answer as a multiple of π

[3]

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Volume is cm³

- (b) On the 1 cm grid opposite, make an accurate scale drawing of the plan and side elevation of this cone.
Use the ratio

actual cone : scale drawing = 4 : 1.

[4]

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Plan



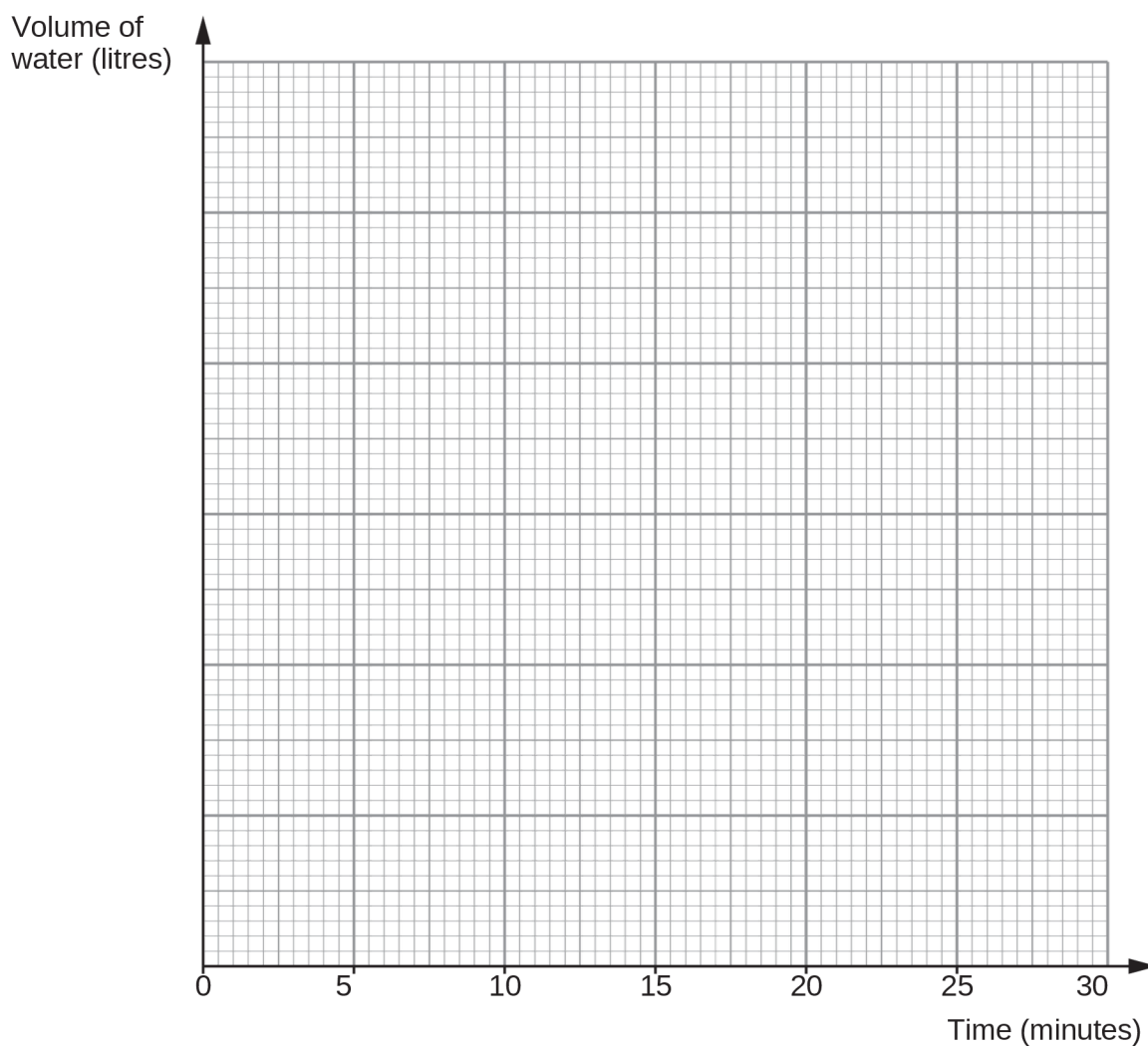
Side elevation



22. A tank contains 180 litres of water.

A tap at the bottom is opened so that water flows out at a constant rate of 6 litres every minute until the tank is empty.

- (a) On the graph paper below, draw a line to show the volume of water in the tank at any time after the tap has been opened [4]



- (b) How many minutes does it take for the volume of water in the tank to decrease by 50% of the original volume? [2]

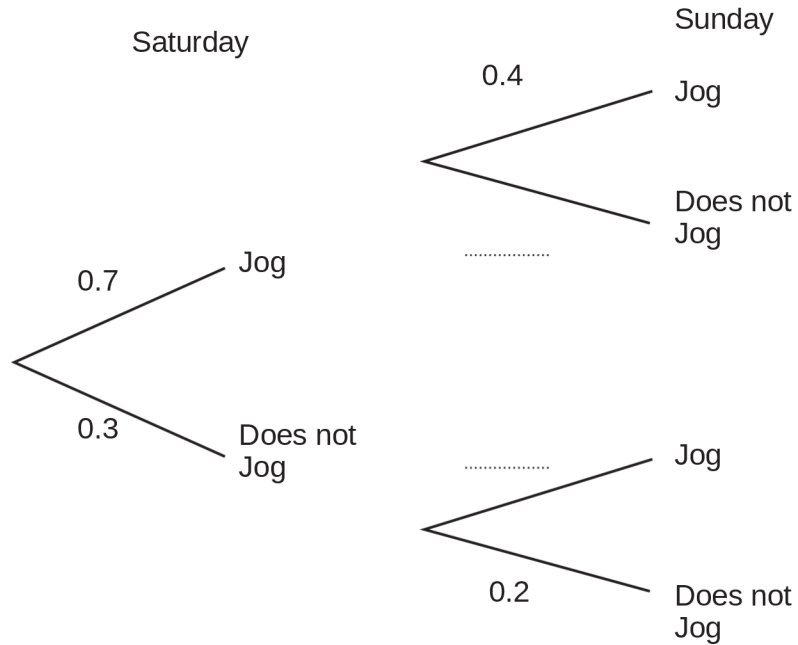
23. The probability that Sam jogs to the park on Saturday is 0.7.

If he jogs on Saturday, the probability that he jogs again on Sunday is 0.4.

If he does not jog on Saturday, the probability that he does not jog on Sunday is 0.2.

(a) Complete the tree diagram.

[1]



(b) Calculate the probability that Sam jogs on both Saturday and Sunday.

[2]

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(c) Calculate the probability that Sam does not jog on either day.

[2]

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24. In a workshop, 5 identical machines can produce 400 widgets in 4 hours.

How long would it take 7 of these machines to produce 600 widgets?

[3]

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25. (a) Expand and simplify $(2x + 8)(5x - 6)$

[3]

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(b) (i) Factorise $x^2 - 10x + 25$.

[2]

(ii) Use your answer to part (b)(i) to write down the solutions of the equation
 $x^2 - 10x + 25 = 0$

[1]

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$x =$

26. Emma wanted to find out how many rabbits there were in a meadow.
One evening, Emma captured a random sample of 15 rabbits and marked them.
She then released them back into the meadow.

The next evening, Emma captured a second random sample of 50 rabbits.
She found that 10 of the rabbits in the second sample had been marked.

Emma estimated that there were 75 rabbits in the meadow.



(a) Show that Emma's estimate of the number of rabbits was correct.

[2]

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(b) Comment on how reliable Emma's estimate was likely to be.

[1]

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END OF PAPER