

AQA

GCSE

Mathematics

SET A – Paper 3 Foundation Tier

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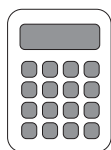
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Materials

Time allowed: 1 hour 30 minutes

For this paper you must have:

- calculator
- mathematical instruments



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the space provided.
- In all calculations, show clearly how you work out your answer.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may use additional paper, graph paper and tracing paper.

Name:

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

- 1 What is the **value** of the 9 in the number 231.92?

Circle your answer.

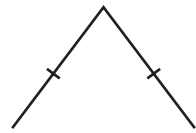
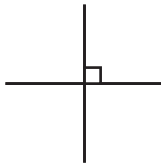
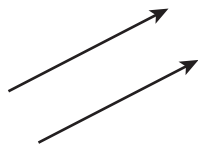
[1 mark]

90 9 9 tenths 9 hundredths

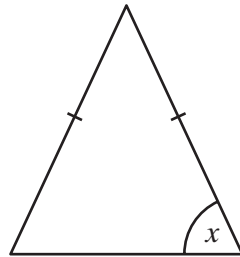
- 2 Which diagram shows a pair of parallel lines?

Circle your answer.

[1 mark]



3



- 3 (a) Give the name for this special triangle.

[1 mark]

Answer

- 3 (b) Measure the size of angle x .

[1 mark]

Answer°

- 4 List the following decimals in order from smallest to largest.

1.3

1.03

1.33

1.303

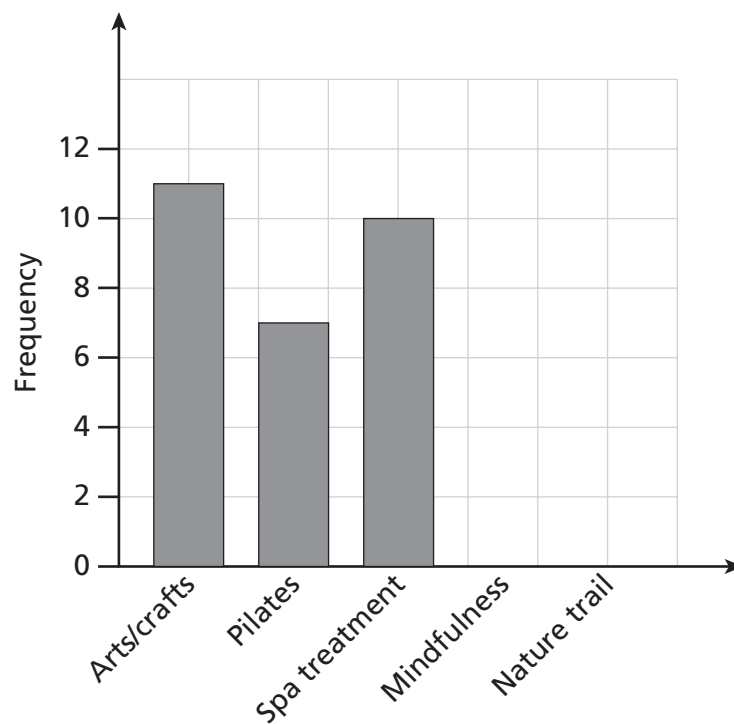
1.095

[2 marks]

Answer _____

- 5 36 people were asked to choose an activity during a health and well-being evening.

The bar chart shows the results.

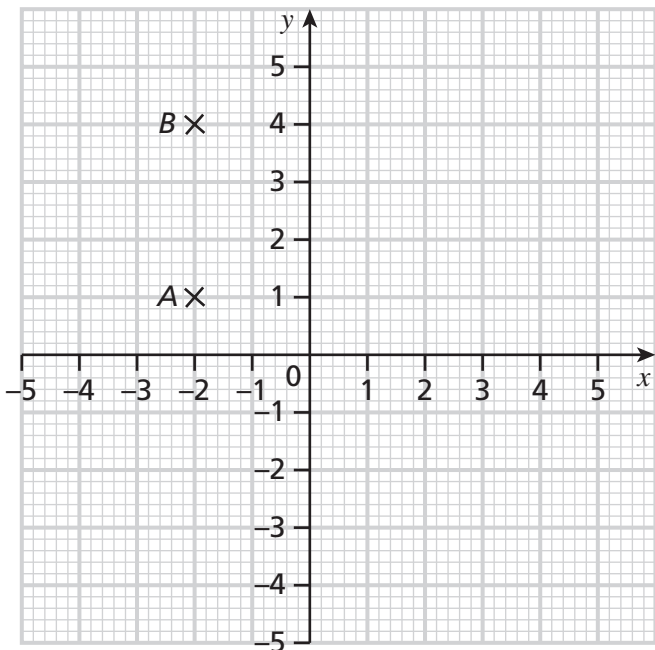


The same number of people chose mindfulness and nature trail.

Complete the bar chart.

[3 marks]

6 This coordinate grid is drawn on centimetre squared paper.



6 (a) Write down the coordinates of point B .

[1 mark]

Answer (..... ,)

$ABCD$ is a rectangle with an area of 21 cm^2 .

6 (b) Give the possible coordinates of points D and C .

[2 marks]

Answer $C = (..... ,)$

Answer $D = (..... ,)$

6 (c) Find the perimeter of the rectangle $ABCD$.

[2 marks]

.....

Answer cm

- 7 (a) Write the next term in the sequence.

3 6 12 24 ...

[1 mark]

Answer

- 7 (b) Is the number 140 a term in this sequence?

Give a reason for your answer.

[1 mark]

.....

.....

- 8 A boat starts at the harbour (H); it travels **due north** for 2 miles, then **due west** for 2 miles.

What compass direction will the boat need to travel to go directly back to the harbour?

[2 marks]

xH



Answer

9 Calculate

9 (a) The square root of 2.25

[1 mark]

Answer

9 (b) The cube of 2.1

[1 mark]

Answer

9 (c) 4^5

[1 mark]

Answer

10 Jill says, 'My house number is

A cube number

A factor of 40

Not a prime number'.

What is Jill's house number?

[3 marks]

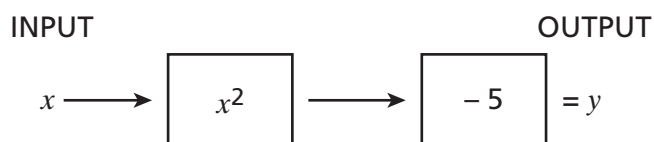
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Answer

- 11 This flow diagram can help to solve the equation $y = x^2 - 5$



- 11 (a) Find the value of y when $x = 6$

[1 mark]

.....

$y =$

- 11 (b) Find the value of x when $y = 59$

[1 mark]

.....

.....

$x =$

- 12 Decide whether each of the following statements are **true**, **false** or **sometimes true**.

[4 marks]

$2 < -3$ Answer

$-1 > -3$ Answer

$x^2 = x$ Answer

$x^2 \geq 0$ Answer

- 14** Find the simple interest earned on an investment of £2500 at 2.5% per year for 2 years.

Circle your answer.

[1 mark]

£125

£156.25

£62.50

£1250

- 15** A sports centre has a gym and a swimming pool.

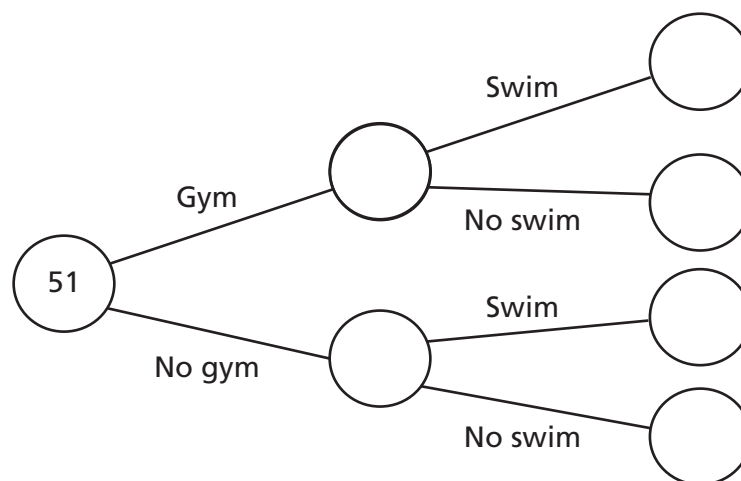
On Wednesday, 51 people visited the centre.

13 people who used the gym also went swimming.

21 people did not use the gym and 6 of those did not swim either.

Complete the frequency tree to illustrate this information.

[2 marks]



- 16** A total of 584 men, women and children are in a shopping centre.

312 are women and approximately 18.8% are children.

- 16 (a)** What fraction of the people in the shopping centre are men?

Give your answer in its simplest form.

[3 marks]

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.....

Answer

The table shows the number of people who have left and the number of people who have arrived at the shopping centre after some time has passed.

	Men	Women	Children
Left	10	12	7
Arrived	11	30	6

16 (b) What percentage of the people in the shopping centre are now women?

[3 marks]

.....

.....

.....

Answer %

17 A metal rod for a piece of machinery is $3\frac{4}{5}$ inches long.

The designer says that the rod would work better if it was $\frac{1}{3}$ longer.

How long should the rod be?

Give your answer as a mixed number.

[3 marks]

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Answer inches

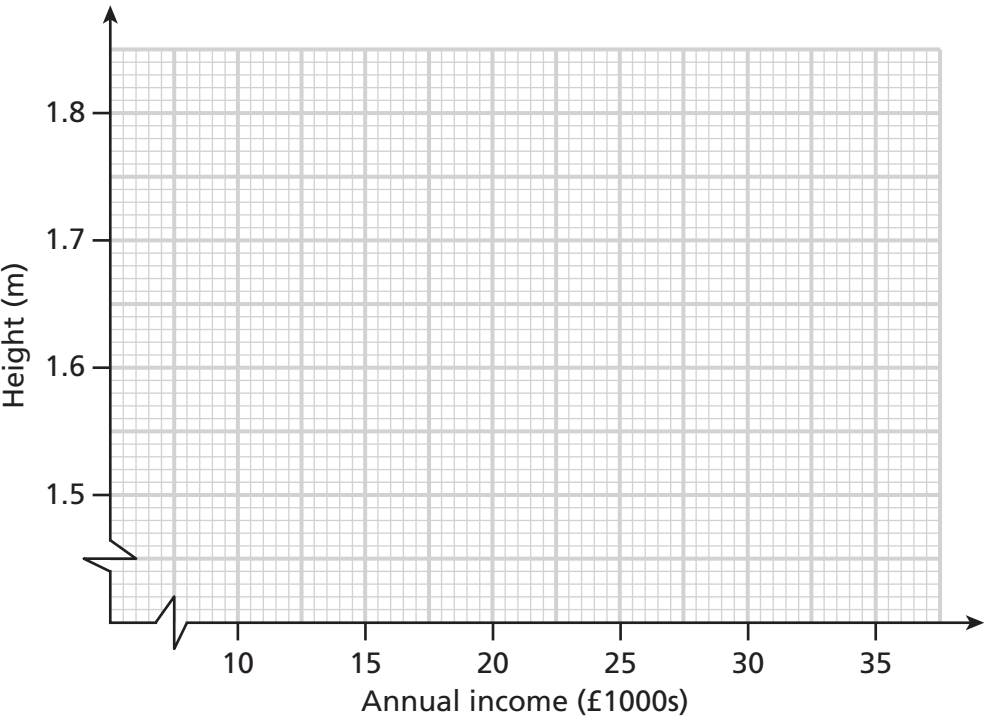
18 10 people were asked their height and annual income.

The table shows the results.

Income (£)	14 000	21 000	26 500	32 500	28 500
Height (m)	1.59	1.72	1.85	1.65	1.57

Income (£)	15 000	13 000	25 000	33 500	29 000
Height (m)	1.83	1.71	1.65	1.79	1.72

18 (a) Plot a scatter graph for this data. [1 mark]



18 (b) Interpret the scatter graph, stating any correlation found. [2 marks]

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19 26 people start on an evening course in September.
By January there are only 19 people left on the course.

What percentage of people have left the course? [2 marks]

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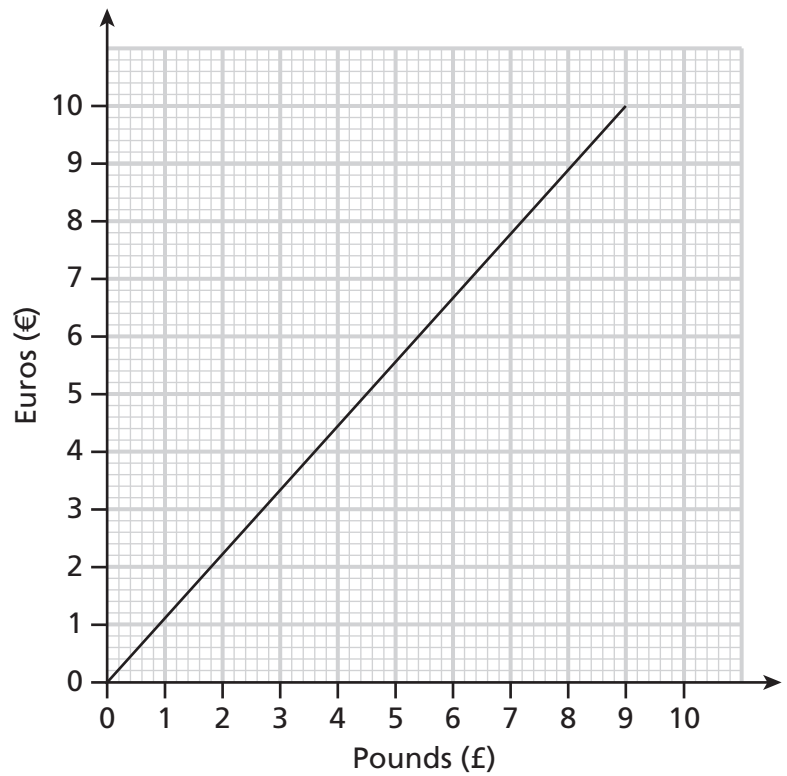
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Answer %

20 John is flying to Paris and then to Beirut.

Below is a conversion graph to change pounds (£) into euros (€).

He changes £500 into euros to take to Paris.



20 (a) How many euros does he take to Paris? [1 mark]

Answer €

20 (b) John spends €260 in Paris and changes the rest into Lebanese Pounds (LBP).

The exchange rate is £1 = 1990 LBP

How many Lebanese Pounds does he take to Beirut? [3 marks]

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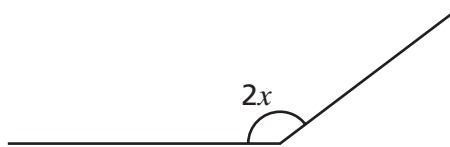
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Answer LBP

- 21 The interior angle of a regular polygon is $2x$.



Show that the number of sides that the polygon has can be written in the form $\frac{a}{b-x}$

[3 marks]

- 22 A rectangle has a length of 8 cm and a width of 5 cm.

A **similar** rectangle has a length of 10 cm.

Work out its width.

Circle your answer.

[1 mark]

7 cm

5.625 cm

6.6 cm

6.25 cm

- 23 2.5 litres of water is boiling in a pan, with a constant heat.

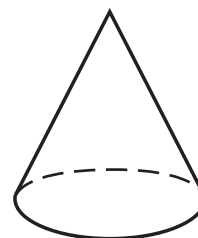
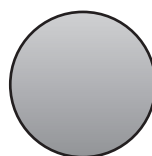
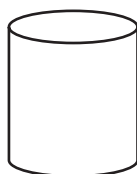
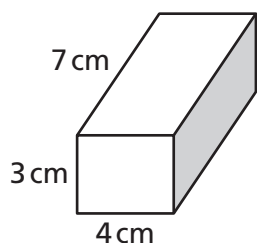
The water evaporates at a rate of 3.5% every minute.

How many minutes would it take for 500 ml of water to evaporate?

[3 marks]

Answer

24 These four shapes are made with different types of metal: iron, silver, copper and zinc.



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

Iron Cuboid

Mass = 661 g

Silver Cylinder

Mass = 557 g

Volume = 55 cm³

Copper Sphere

Density =

9.96 g/cm³

Zinc Cone

Mass = 336 g

Radius = 3 cm

Height = 5 cm

Use all the information to list the four metals **in order** from **least to highest** density.

You **must** show your working.

[7 marks]

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Answer

25 (a) Factorise $x^2 + x - 6$

[2 marks]

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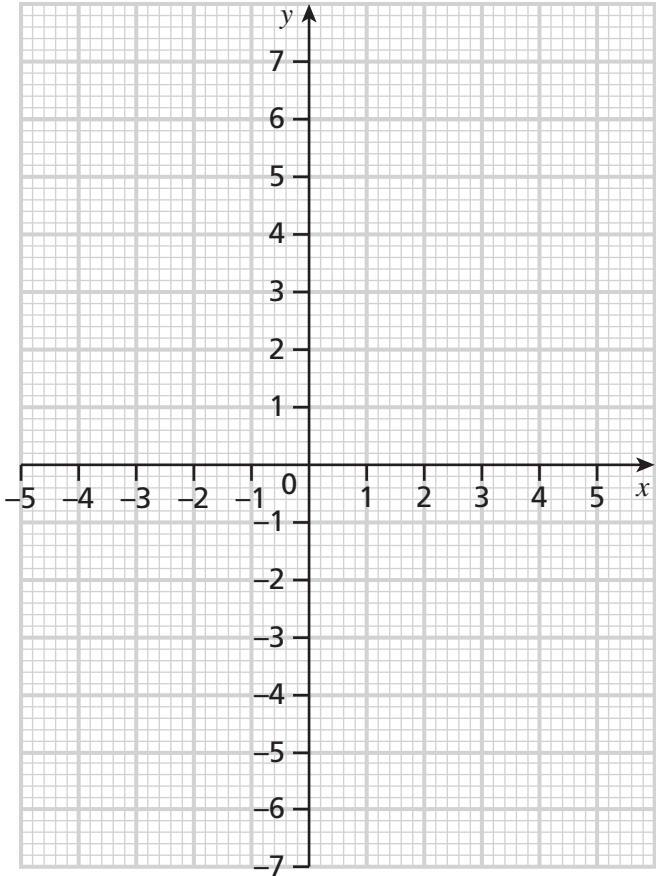
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Answer

25 (b) Plot the graph of $y = x^2 + x - 6$

[3 marks]

x	-3	-2	-1	0	1	2	3
y		-4			-4	0	6

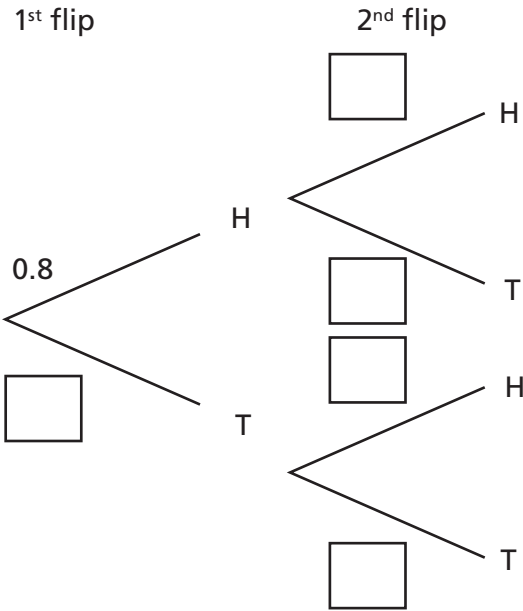


26 (a) The probability that a **biased** coin will land on heads is 0.8

The coin is flipped twice.

Label the tree diagram.

[2 marks]



26 (b) Find the probability of getting two heads in a row.

[2 marks]

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Answer

END OF QUESTIONS