For **AQA**

Name	Class

GCSE
Mathematics Specification

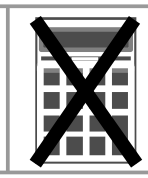
F

Paper 1 Foundation Tier

Churchill Paper 1A

1 hour 30 minutes

Materials

For this paper you must have:	
• mathematical instruments	
You must **not** use a calculator	

Instructions

- Use black ink or black ball-point pen.
- Draw diagrams in pencil.
- Write your name and class in the box at the top of the page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- 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.

Churchill Maths

Written by Shaun Armstrong

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

1 How many seconds are there in 5 minutes?

Circle your answer.

[1 mark]

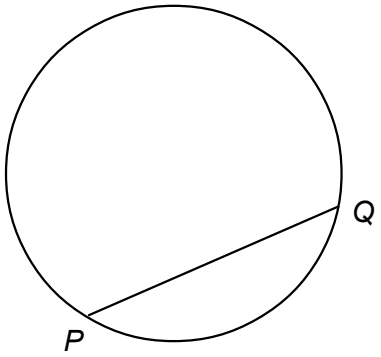
200 300 360 3000

2 Circle the square root of 144.

[1 mark]

11 12 13 14

3



Circle the correct name for the straight line *PQ* in the diagram above.

[1 mark]

radius chord tangent arc

4 Work out $2.8 \div 0.7$

Circle your answer.

[1 mark]

0.04 0.4 4 40

5 Simplify

(a) $5p - 2p + p$

[1 mark]

Answer _____

5 (b) $4m - 2n + 3m + 5n$

[2 marks]

Answer _____

6 A group of children were asked what their favourite pet was.
The results are shown in the pictogram.

Dog	
Cat	
Rabbit	
Guinea Pig	
Hamster	

Key:  represents 2 children

6 (a) How many children said Cat was their favourite pet?

[1 mark]

Answer _____

Mona says

"More than a third of the children chose Dog as their favourite."

6 (b) Is Mona correct?

Show working to support your answer.

[3 marks]

Answer _____

7 A hot dog costs £2.80
A hot dog with cheese costs 15p more.

Steve and Lennie have £20.

Steve says "Let's buy as many hot dogs with cheese as we can."
Lennie says "If we don't have the cheese we can get an extra hot dog."

Find out if Lennie is correct.

You must justify your answer.

[4 marks]

Answer _____

8 Fill in the missing numbers to make each calculation correct.

8 (a) $2.7 + \square = 3.55$

[1 mark]

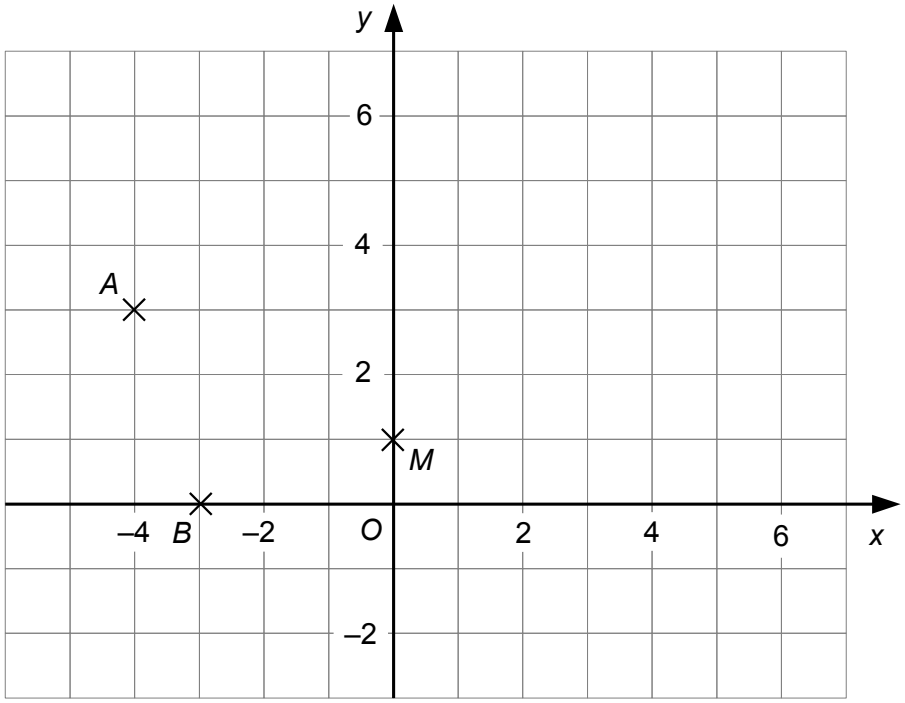
8 (b) $\frac{2}{5} - \square = \frac{3}{10}$

[1 mark]

8 (c) $4 \times \square = 0.12$

[1 mark]

9



The points *A*, *B* and *M* are shown on the grid.

9 **(a)** Write down the coordinates of the point *A*.

[1 mark]

Answer (_____ , _____)

M is the midpoint of *BC*.

9 **(b)** Plot the point *C* on the grid.

[1 mark]

ABCD is a rectangle.

9 **(c)** Write down the coordinates of the point *D*.

[2 marks]

Answer (_____ , _____)

10 (a) Write down the value of $\sqrt[3]{8}$

[1 mark]

Answer _____

10 (b) Work out the value of

$5^2 + 4^3 + 3^4$

[2 marks]

Answer _____

11 What is the median of this set of data?

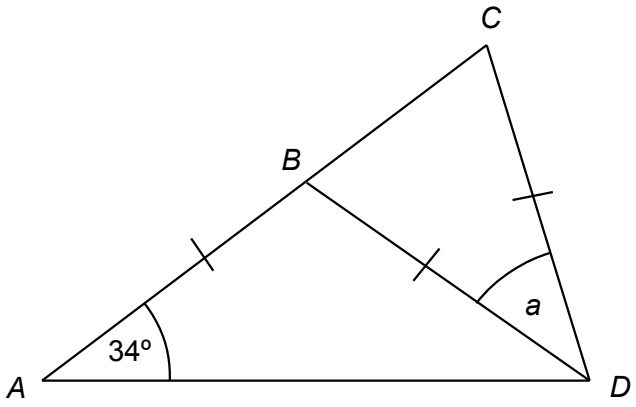
2 4 4 4 6 7 8 8 9

Circle your answer.

[1 mark]

4 5 6 6.5

12



Not drawn accurately

In the diagram, $AB = BD = CD$.

ABC is a straight line.

Work out the size of angle a.

Give a reason for each stage of your working.

[4 marks]

Answer _____ °

13 Asad is paid £10.60 per hour.

How much does Asad get paid for $3\frac{1}{2}$ hours work?

Circle your answer.

[1 mark]

£31.80 £35.30 £36.80 £37.10

14 (a) Find the value of $p + q$ when $p = 4.7$ and $q = -1.5$

[1 mark]

Answer _____

14 (b) Solve $5y = 2y + 18$

[2 marks]

Answer _____

15 A bag contains only red beads and blue beads.

Faria picks out a bead at random, notes its colour and puts the bead back.
Faria does this 10 times and gets a red bead 7 times.

Faria says "There are more red beads than blue beads in the bag."

15 (a) Comment on Faria's statement.

[1 mark]

Rosa, Shamila and Tess each do the same experiment as Faria.
Here are all the results.

	Number of times a red bead is picked	Number of times a blue bead is picked
Faria	7	3
Rosa	6	4
Shamila	8	2
Tess	6	4

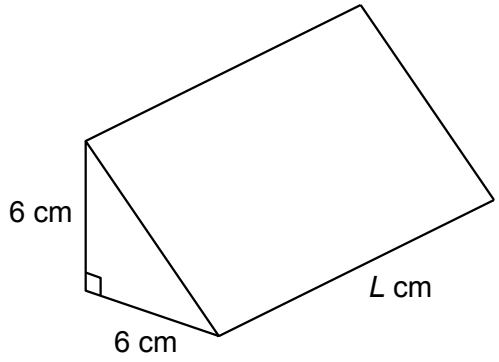
Faria is going to pick out another bead and put it back in the bag.

15 (b) Using the results in the table, work out the best estimate for the probability that she picks out a red bead.

[2 marks]

Answer _____

16



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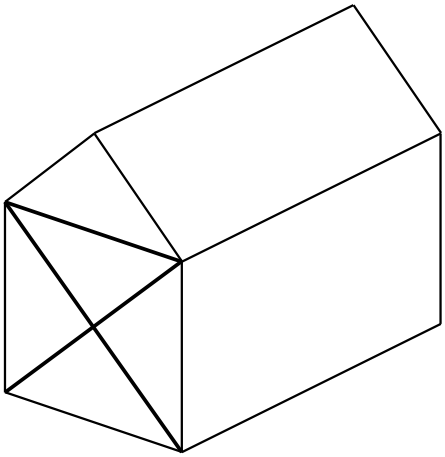


Kayla is playing with blocks.

Each block is a prism.

The cross section of the prism is a right-angled triangle as shown.

Kayla uses 5 of the blocks to make a house.
The volume of the house is 990 cm^3.

Work out the length, *L* cm, of each block.

[4 marks]

Answer _____ cm

17 (a) Write 112 as a product of its prime factors.

[2 marks]

Answer _____

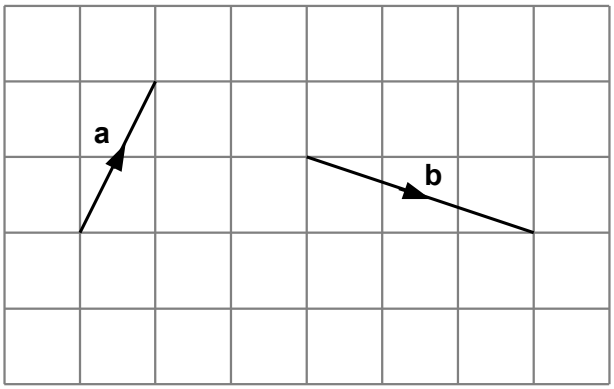
17 (b) Find the highest common factor (HCF) of 112 and 140.

Give your answer as a single number.

[2 marks]

Answer _____

18



Vectors **a** and **b** are shown on a unit grid.

Vector **a** can be written as $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$.

18 (a) Write vector **b** as a column vector.

[1 mark]

Answer _____

18 (b) Work out $4\mathbf{a} - \mathbf{b}$.

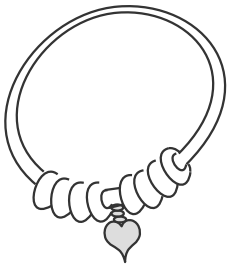
Give your answer as a column vector.

[2 marks]

Answer _____

19 Toby makes bracelets by putting 8 beads, 4 spacers and a heart charm on a silver chain.
He buys the separate items in bulk at the following prices:

20 silver chains	£180
500 beads	£750
100 spacers	£90
30 heart charms	£120



19 (a) Work out the cost of the materials for one bracelet.

[3 marks]

Answer £ _____

At a market one day, Toby sells 15 bracelets for £39.90 each.

19 (b) How much profit does he make at the market?

[2 marks]

Answer £ _____

20 What is the next term in this geometric progression?

2 6 18 54 ...

Circle your answer.

[1 mark]

72 162 166 2916

21 500 children are members of a club.
There are 100 more boys in the club than girls.

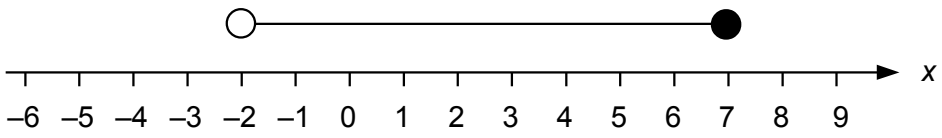
A year later the number of children who are members has increased by 20%.
The number of boys in the club has increased by 16%.

Work out the percentage increase in the number of girls in the club.

[4 marks]

Answer _____ %

22 (a)



Write down the inequality represented by the diagram above.

[1 mark]

Answer _____

22 (b) Find the whole number N given that

$2N < 30$ and $3N > 40$

[2 marks]

Answer _____

23 The number of emails Leanne sent this week is 20% more than last week.

This week Leanne sent 240 emails.

Work out how many emails Leanne sent last week.

[2 marks]

Answer _____

24 Jeremy, Kira and Liz are maths teachers.

Jeremy can mark 12 homeworks in an hour.
Kira can mark 30 homeworks in 2 hours.
Liz can mark 1 homework every 6 minutes.

24 (a) Show that Kira is the quickest of the three teachers at marking homework.

[2 marks]

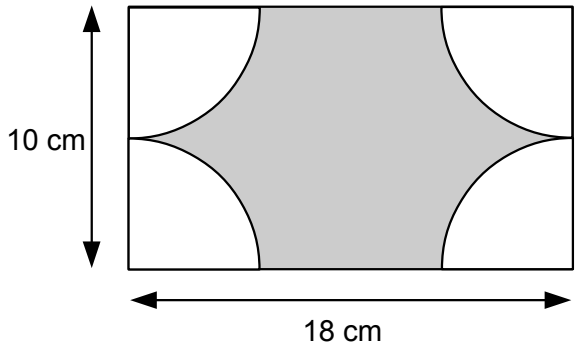
One night, Jeremy and Kira work together to mark 36 homeworks.
They both start at 4.30 pm and work until all the homeworks are marked.

24 (b) At what time do Jeremy and Kira finish marking?

[3 marks]

Answer _____

25



Not drawn accurately

A rectangle measures 18 cm by 10 cm.
Four identical quarter-circles are removed to leave the shaded region shown above.

Work out the area of the shaded region.

Give your answer in terms of π.

[3 marks]

Answer _____ cm^2

26 The ratio of men to women at a concert is 2 : 3
There are 600 people at the concert.

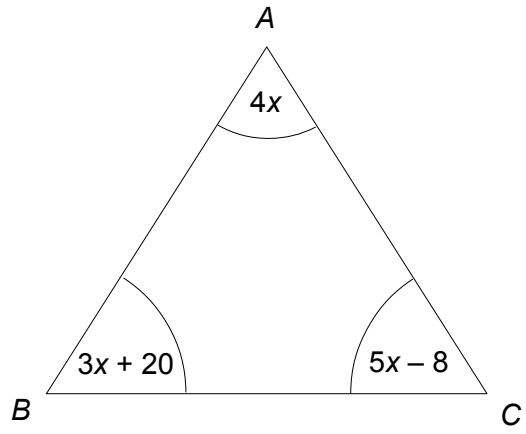
How many men are there at the concert?

Circle your answer.

[1 mark]

120 200 240 250

27



Not drawn accurately

The angles in triangle ABC are given in degrees.

Prove that $AB = AC$.

[4 marks]

28 Jamila, Kelly and Lee go to the bakery.

Jamila pays £3 for 3 baguettes and 2 rolls.

Kelly pays £2 for 1 baguette and 4 rolls.

Lee buys 2 baguettes and 5 rolls.

Work out how much Lee pays.

[4 marks]

Answer £ _____

END OF QUESTIONS