

Key Stage 2

Mathematics

Paper 3: Reasoning

First Name						
Middle Name						
Last Name						
Date of Birth	Day		Month		Year	
School Name						

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Instructions

You **must not** use a calculator to answer any questions in this test.

Questions and answers

You have **40 minutes** to complete this test.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use the space around the question.

Some questions have a method box like this:

[illegible]

For these questions you may get a mark for showing your method.

If you cannot do one of the questions, **go on to the next one.**

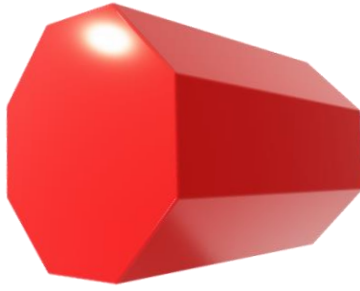
You can come back to it later, if you have time.

If you finish before the end, **go back and check your work.**

Marks

The number under each line at the side of the page tells you the number of marks available for each question.

1. Here is a drawing of an octagonal prism.



How many **faces** does the prism have?

1 mark

2. Here are six number cards.

4

5

6

7

8

9

Use **all six** cards to complete the three multiplications below.

$$56 = \square \times \square$$

$$36 = \square \times \square$$

$$30 = \square \times \square$$

1 mark

3. Olivia buys two packets of nuts and an apple.



30p



45p



60p

She pays with four 50p coins.

What is her change?

Show
your
method

p

2 marks

4.

Draw **four** lines to match each fraction to its equivalent decimal.

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

$$\frac{7}{10}$$

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

$$\frac{7}{100}$$

$$0.7$$

$$0.5$$

$$0.2$$

$$0.07$$

$$0.25$$

$$0.75$$

2 marks

5.

Some children vote for their favourite ice-cream flavour.

Ice-cream flavour	Number of children
vanilla	87
chocolate	?
strawberry	147
mint	38
Total	402

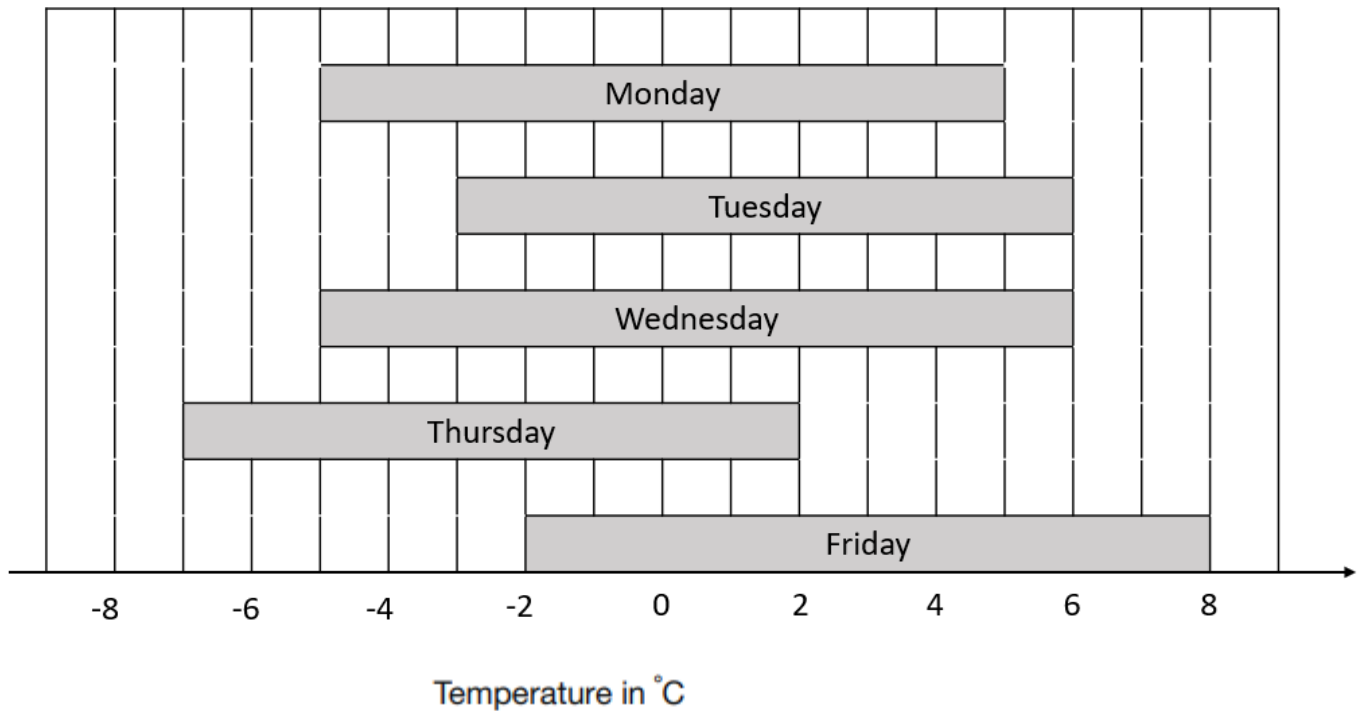
How many children voted for **chocolate**?

Show
your
method

children

2 marks

6. This chart shows the range of temperatures each day during one week from Monday to Friday.



What was the **lowest** temperature?

°C

1 mark

What was the difference between the highest and lowest temperatures on **Wednesday**?

°C

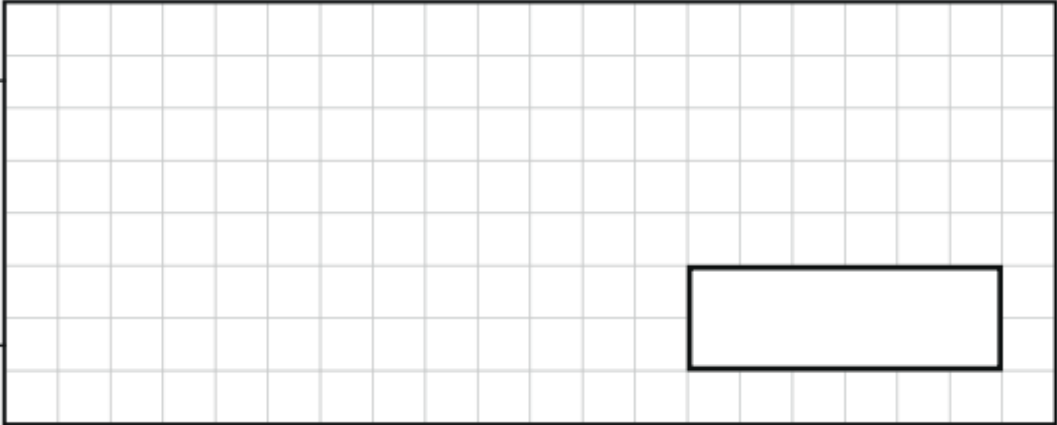
1 mark

7. One Saturday afternoon, a total of 240,632 people attended three rugby matches.

- 82,879 people attended match 1.
- 68,309 people attended match 2.

How many people attended match 3?

Show your method



2 marks

8.

6, 468

Round this number:

to the nearest 1,000

to the nearest 100

to the nearest 10

2 marks

9.

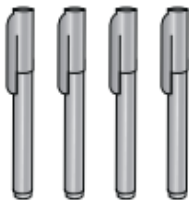
Complete the calculation.

$$1,000 \times 237 = 10 \times \boxed{}$$

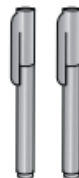
1 mark

10.

Adam buys 4 pens and a ruler and pays £5.38 altogether



Jack buys 2 pens and pays £1.94 altogether.



How much does a **ruler** cost?

Show
your
method

Page 10

2 marks

11.

Ally chooses a whole number.

When she multiplies her number by 3, the answer is less than 100.

When she multiplies her number by 4, the answer is greater than 100

Write a number that Ally could have started with.

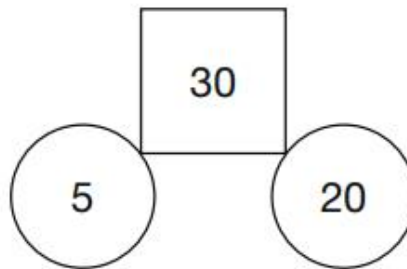
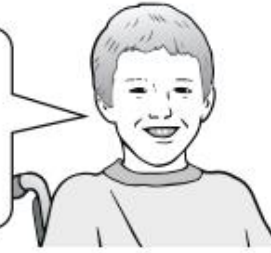
1 mark

12.

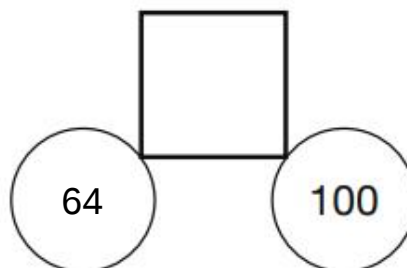
William says the rule for this diagram.

Find the difference between the numbers in the circles.

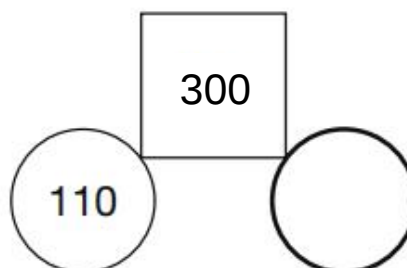
Double this to make the number in the square.



Use the same rule to write the missing numbers below.



1 mark



1 mark

13.

Write the missing fraction to make this **addition** correct.

$$\frac{3}{4} + \boxed{} = \frac{7}{8}$$

14.

Jack hires a hall for a party. This formula is used to work out the total cost.

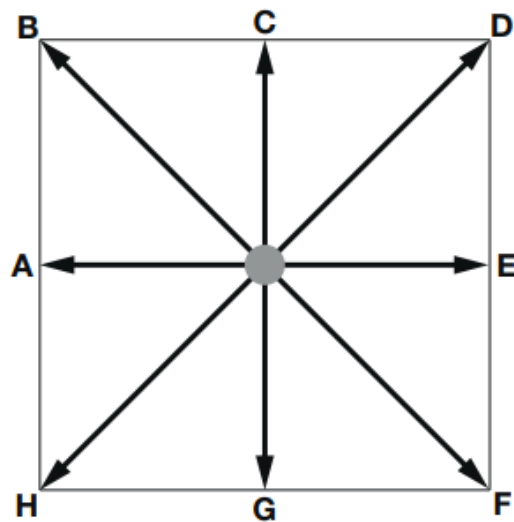
Total cost = £25 booking fee + £10.50 per hour

What is the total cost of hiring the hall from 5pm until 11pm?

£

1 mark

15. Stefan stands in the centre of this square.



Not actual size

Stefan is facing towards **B**.

He turns **clockwise** to face **H**.

What **angle** does Stefan turn through?

degrees

1 mark

Stefan is now facing **F**.

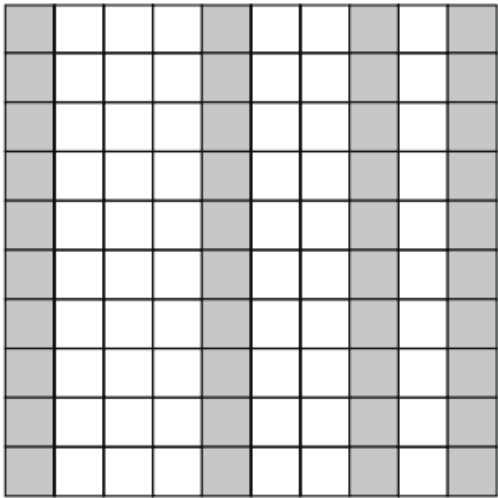
He turns **2 right angles anti-clockwise**.

Write the **letter** he faces after the turn.

1 mark

16.

Part of this 10 × 10 grid is shaded.



Tick the fractions which represent the **unshaded** part of the grid.

$\frac{3}{4}$ ☐

$\frac{3}{5}$ ☐

$\frac{4}{10}$ ☐

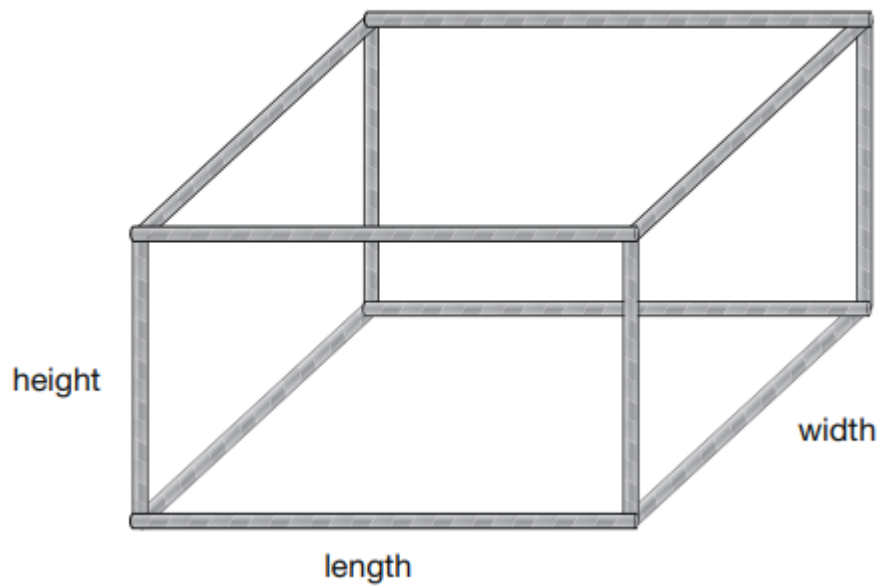
$\frac{6}{10}$ ☐

$\frac{60}{100}$ ☐

2 marks

17.

Kim makes a cuboid model using straws.



She uses straws that are 8.5 cm long for the height.

She uses straws that are 13 cm long for the length.

She uses straws that are 9.5 cm long for the width.

What is the **total** length of all the straws in her model?

Show
your
method

2 marks

18.



The **full price** of a T-shirt is £14.

The price is reduced by 40%.

What is the **reduced price**?

Show
your
method

£

2 marks

19.

Jack says,

When you square any prime number below 30, it will only have 3 factors.



Is Jack correct? Explain your answer.

A large, empty, cloud-shaped box with a scalloped border, intended for the student to write their explanation.

1 mark

20. This table shows how many people took part in a UK parkrun each week in November 2022.

Week in November 2022	Total number of people who took part in a parkrun
Week 1	350, 245
Week 2	298, 302
Week 3	347, 793
Week 4	265, 097

What is the mean number of people who took part in a UK parkrun each week in November 2022?

Round your answer to **the nearest hundred**

Show your method

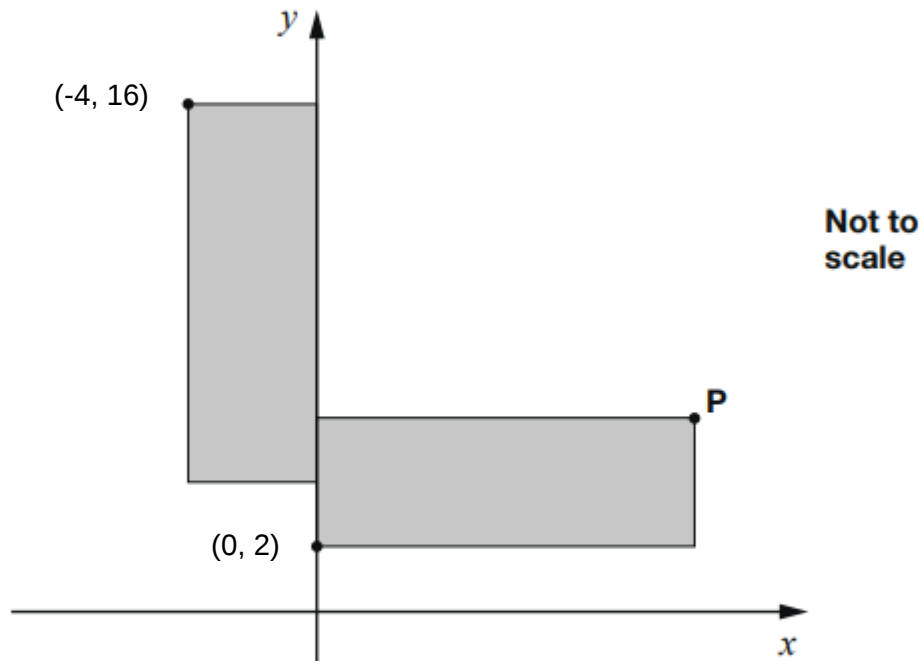
people

3 marks

21.

These two rectangles are identical.

The length of each rectangle is **three times** its width.



What are the coordinates of point **P**?

(		,		)
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1 mark