Oldham Hulme Grammar School
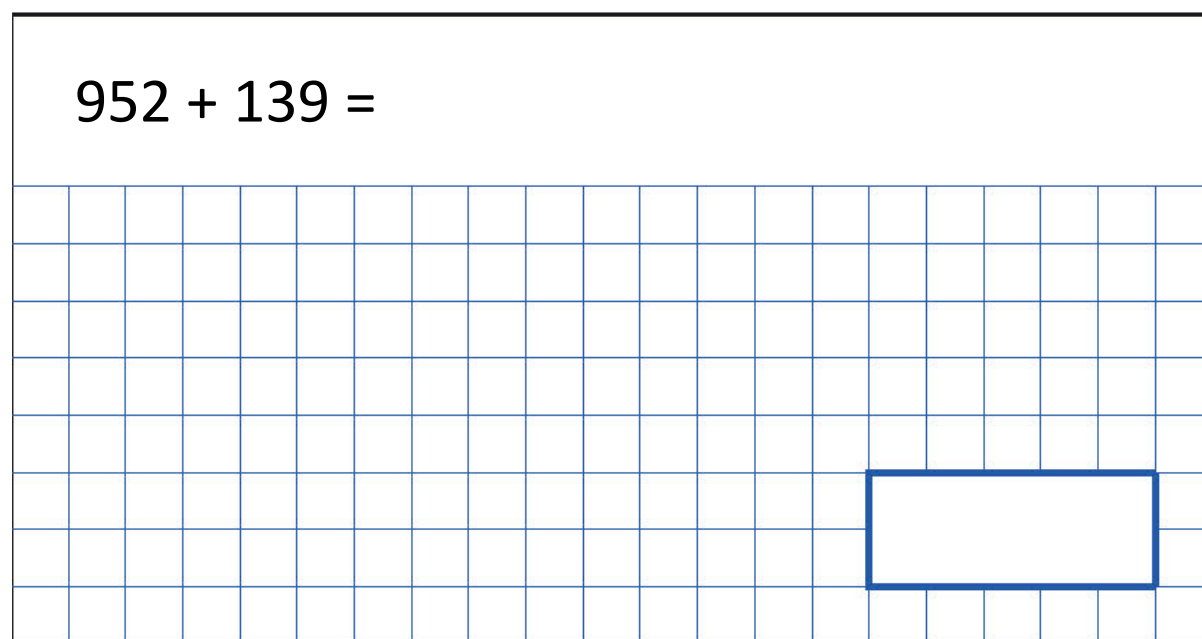
Entrance exam 2020

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

Section A: Write the answer to each question in the answer box. You may use the grid for your working out. There are a total of 20 marks available in this section.
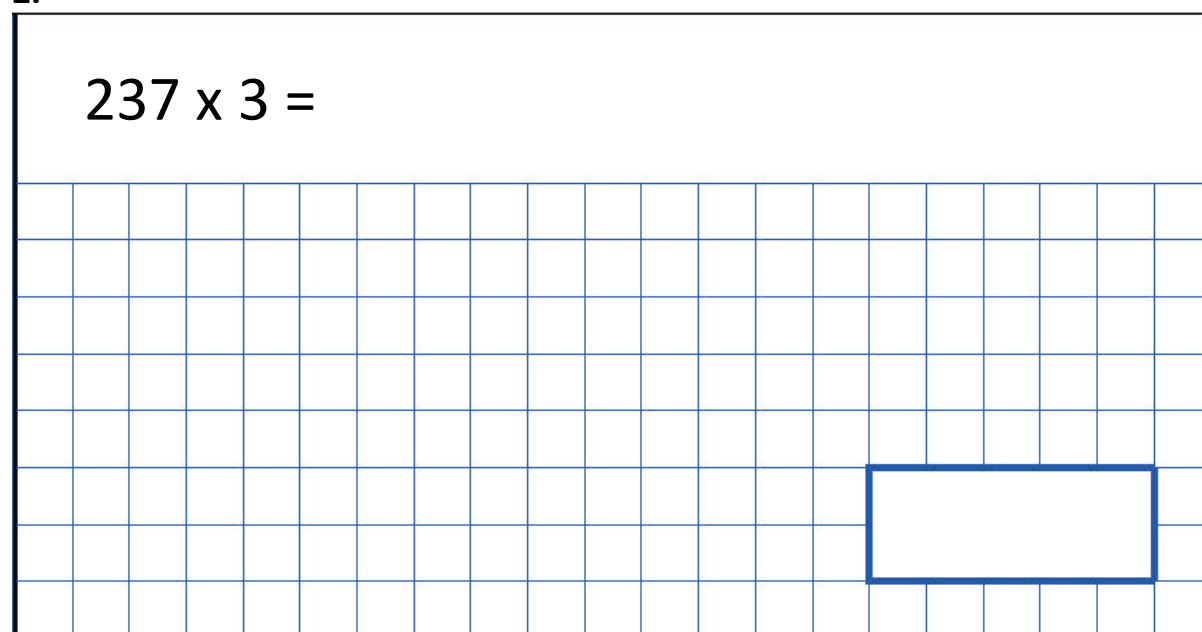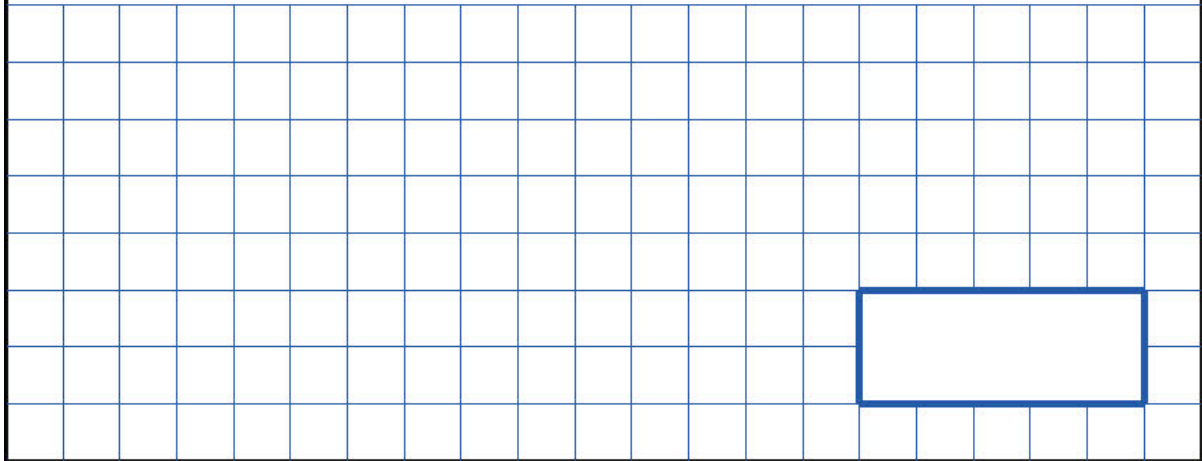
1.

952 + 139 =

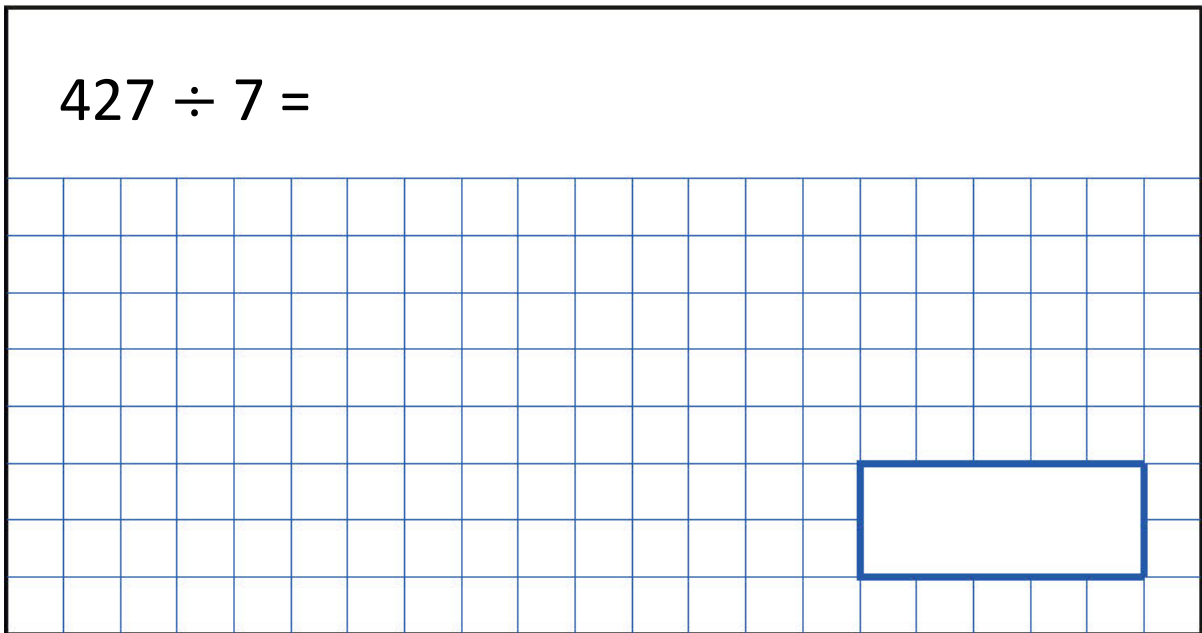**1 mark**

2.

237 x 3 =

1 mark

3.

452 - 191 =

1 mark

4.

427 ÷ 7 =

1 mark

5.

5.4 + 3.7 =

6.

265 x 30 =

7.
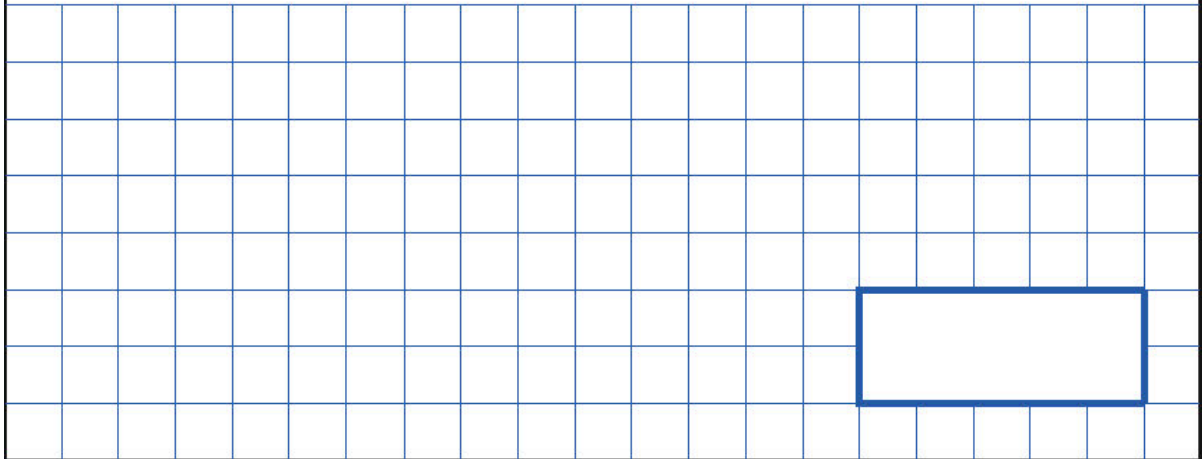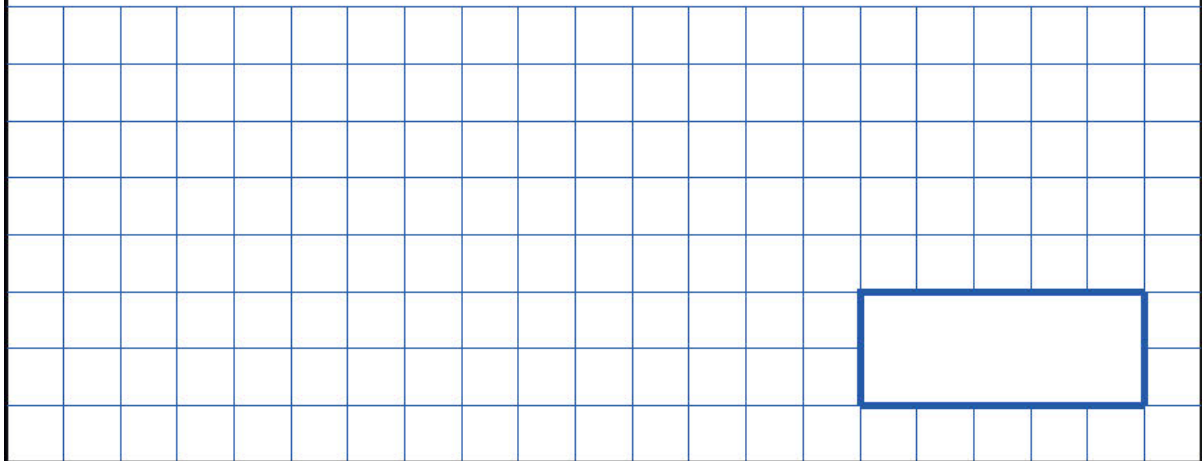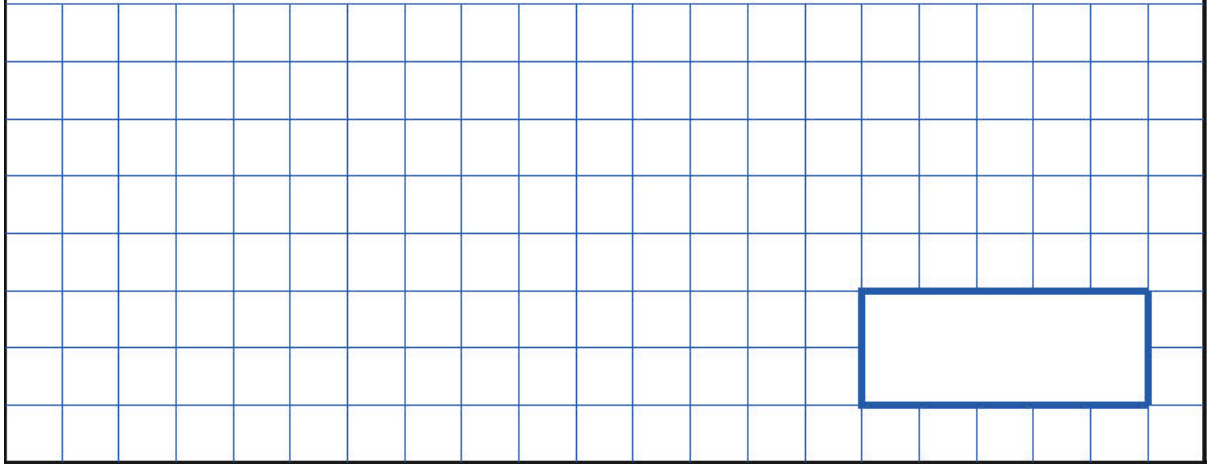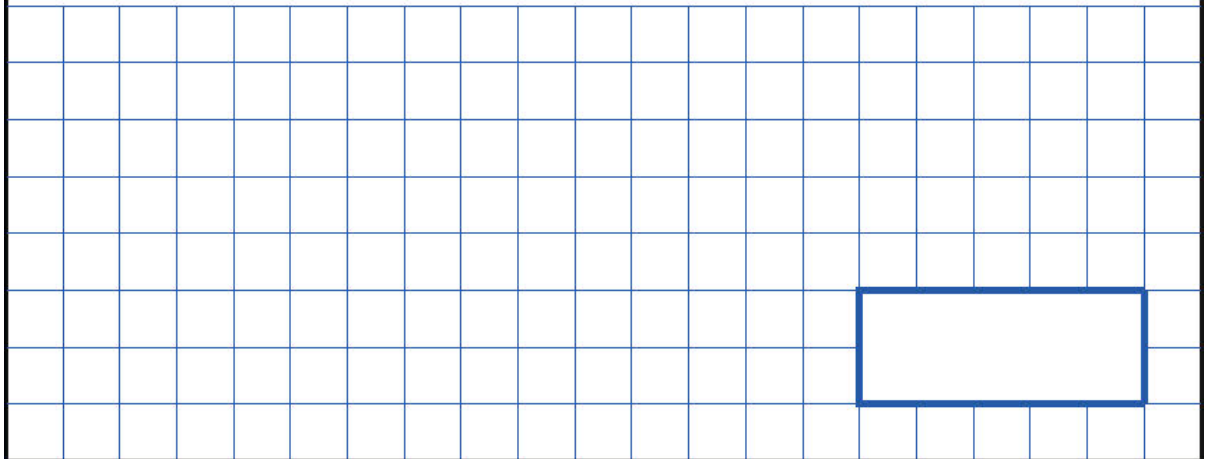
5 x 7 x 8 =
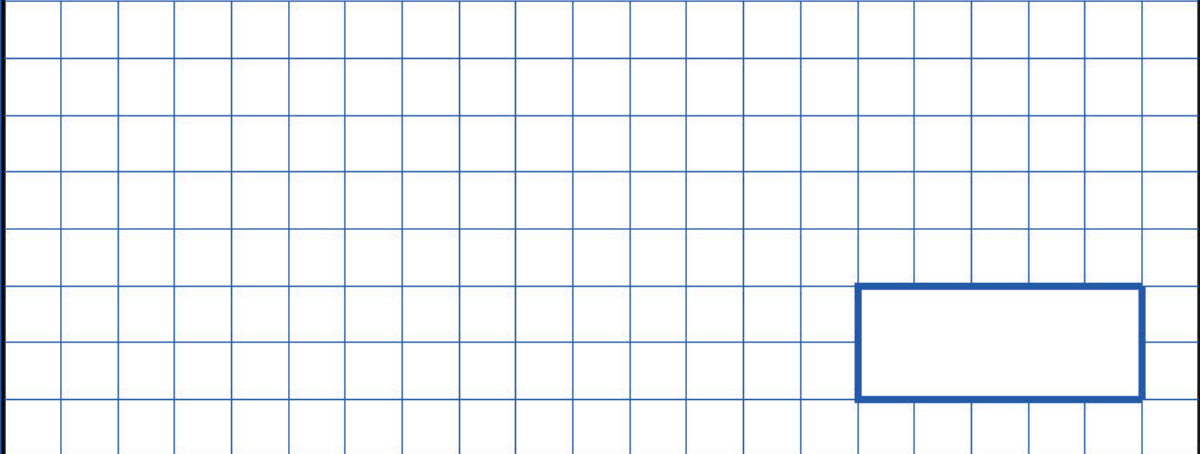
2 marks

8.

6.5 + 2.55 =

2 marks

9.

$$\frac{4}{7} - \frac{1}{7} =$$

10.
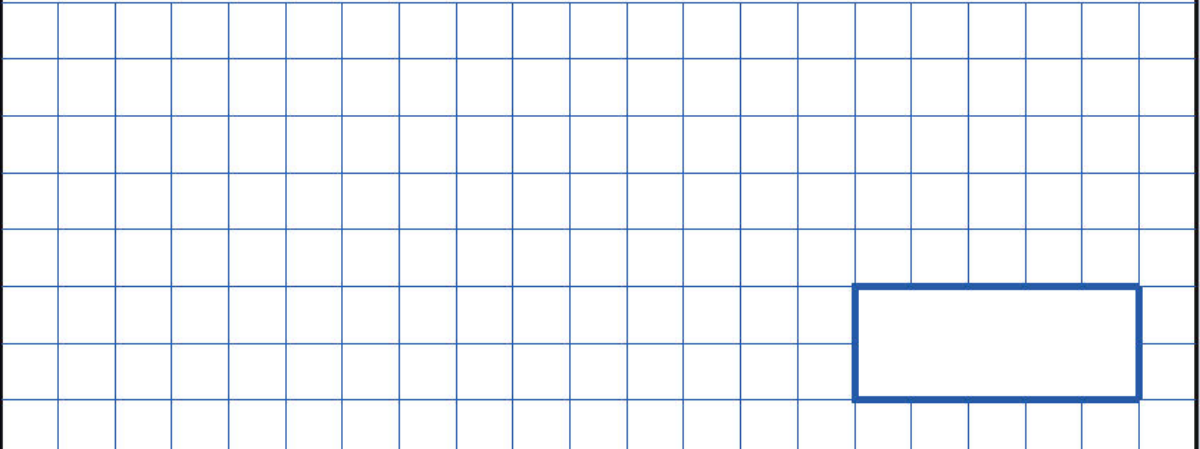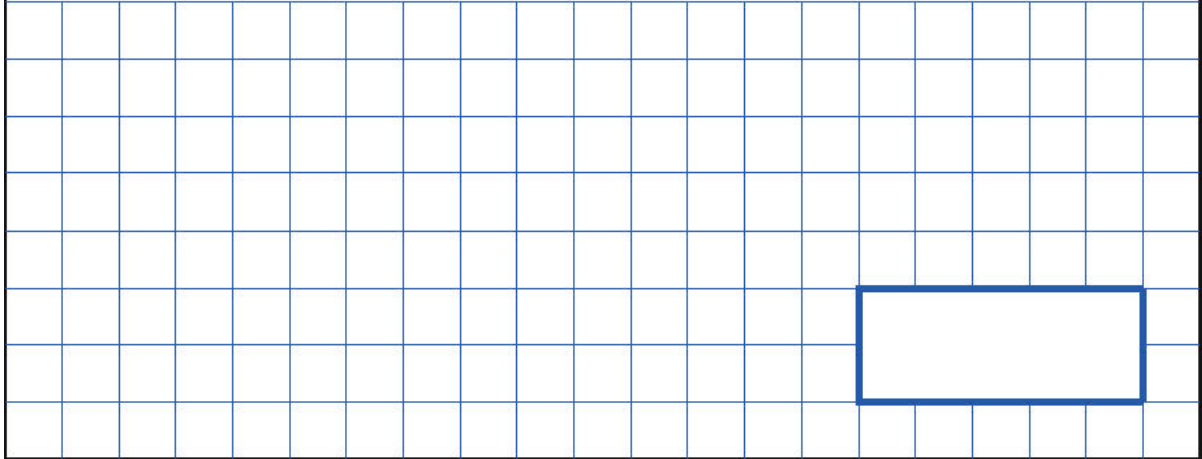
$$729 \div 9 =$$

11.
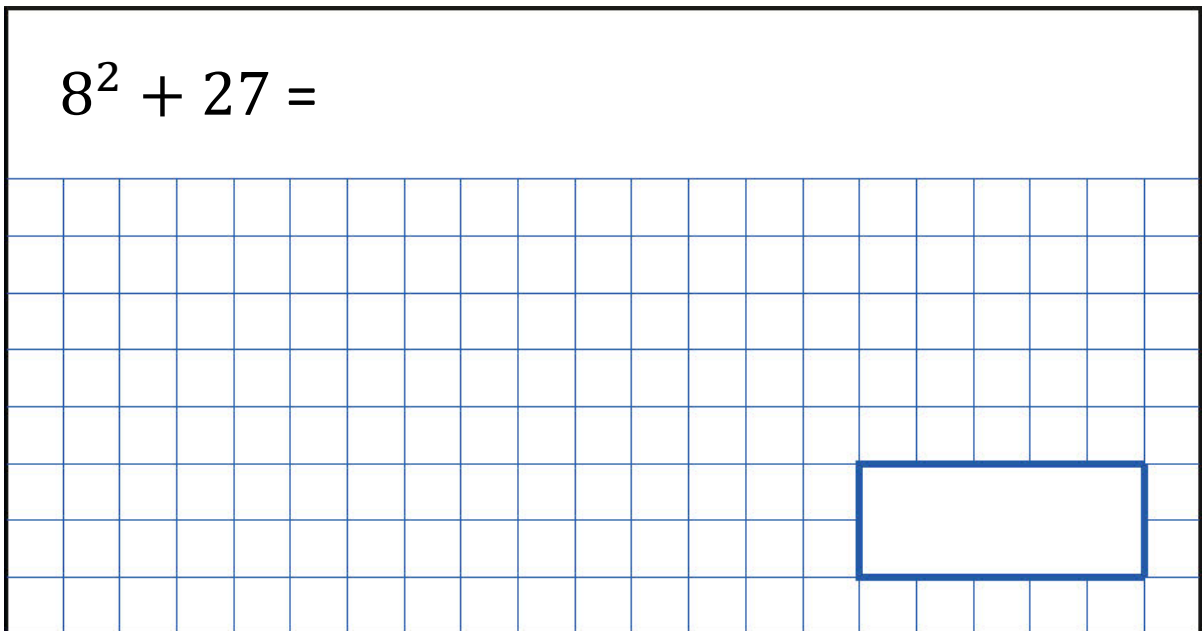
$17.42 \times 1000 =$

1 mark

12.
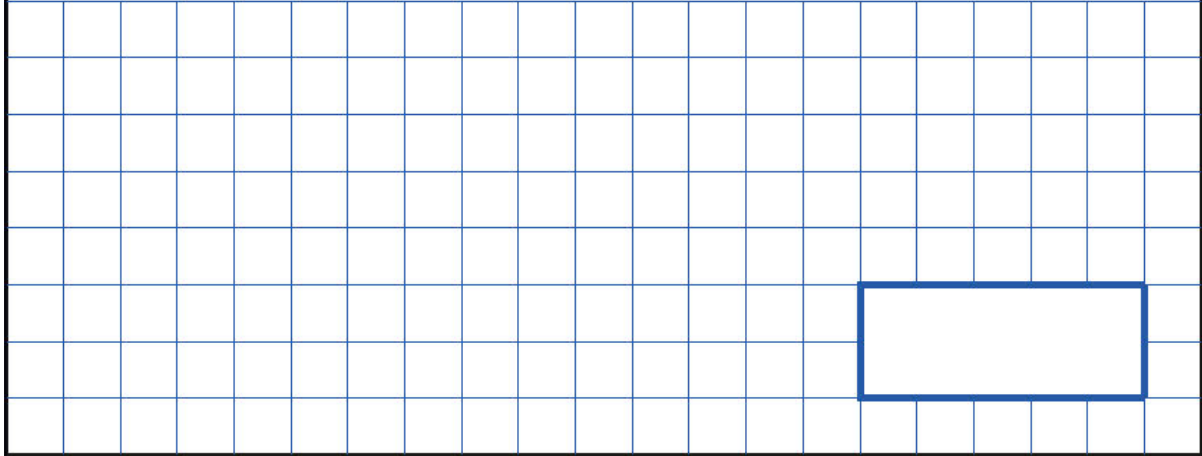
$8^2 + 27 =$

2 marks

13.

25% of 1200 =

14.
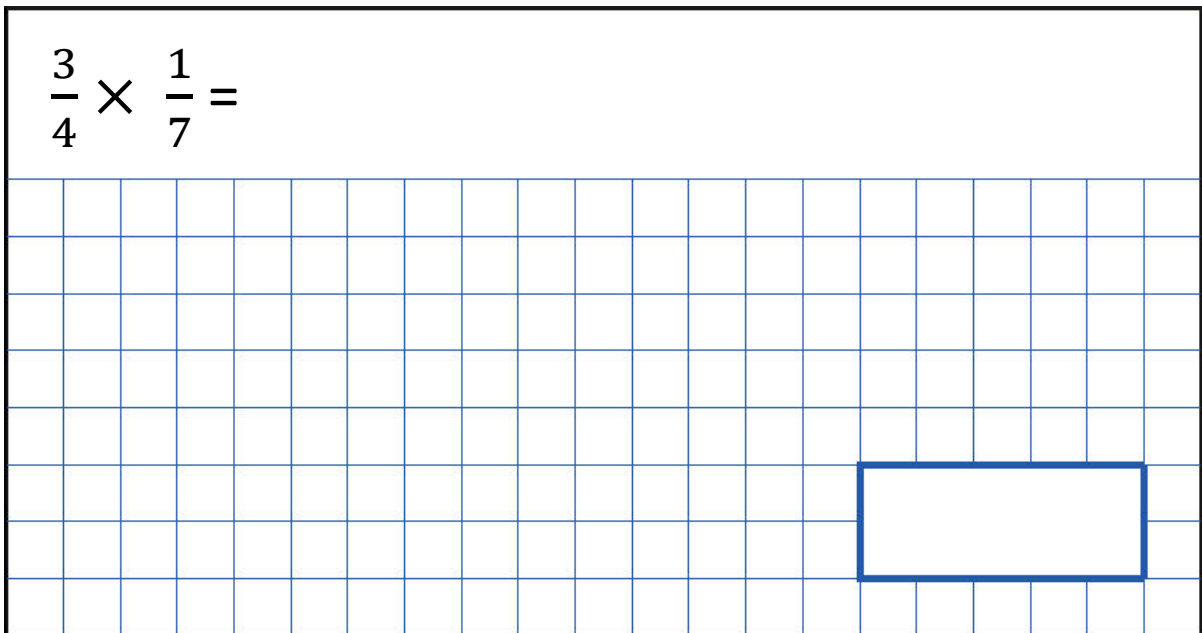
$$\frac{3}{4} \times \frac{1}{7} =$$

Section B: For these questions, show your working in the space provided.

1. Here is part of a number line.

Write the missing numbers in the boxes

$+8$ $+8$

| | −5 | |

2 marks

2. **Write the missing number.**

One is done for you.

190   is 30 more than   160

[   ]   is 30 more than   237

1 mark

3.

(a) The term-to-term rule of the sequence is | Multiply by 2 |

The third term of this sequence is 6.

……..   ……..   6   ……..

Work out the first term of this sequence.

....

....

....

....

Answer ....
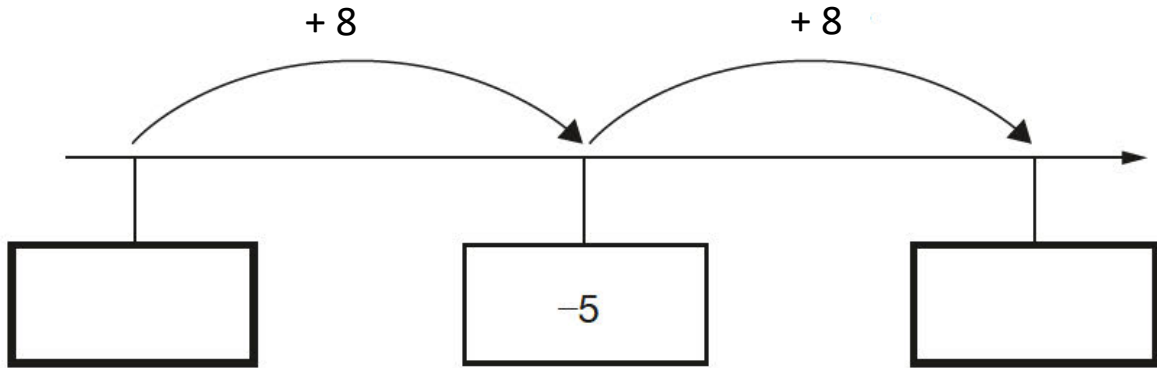
2 marks

(b) Here are the first two terms of a sequence.1

2   8   ……..   ……..

The term-to-term rule of the sequence is | Multiply by 3 and add 2 |

Work out the next two terms of the sequence.

....

....

Answer............................. and ....
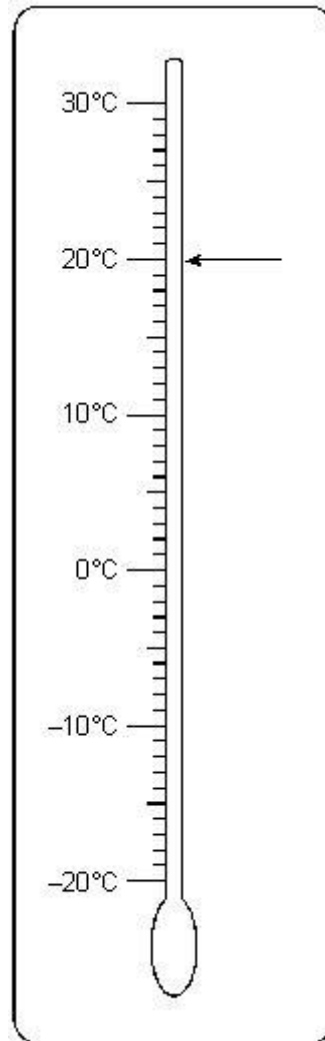
2 marks

4.

Temperature

The arrow by this thermometer shows a temperature of **20°C**

(a)   Draw an arrow by the thermometer   to show a temperature of **–8°C**

(b)   The temperature was **–10°C**
       It **went up** by **15°C**
       What is the new temperature?
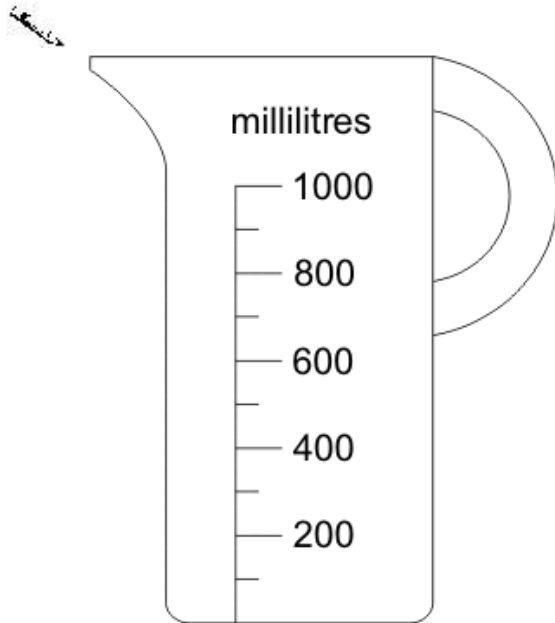
✎ .... °C

1 mark

1 mark

5. Sarah has 0.5 **litres** of water in a jug.

She pours this water into the jug below.

Draw the correct level of the water on the jug.

millilitres
- 1000
- 800
- 600
- 400
- 200

1 mark

6. **Round 132 621**

to the nearest 10,000
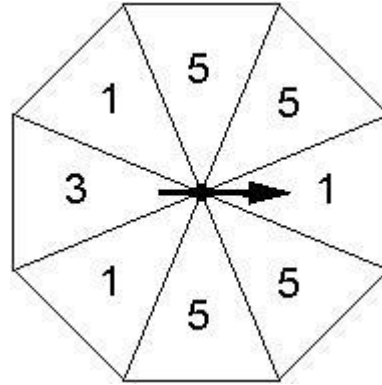
to the nearest 1,000

to the nearest 100

3 marks

7.

Spinner

Tom has a fair spinner with 8 equal sections.

He is going to spin the pointer.

Draw lines to show how likely the following are.

One is done for you.

3 marks

8.

This graph shows the temperature in six cities on one day in January.
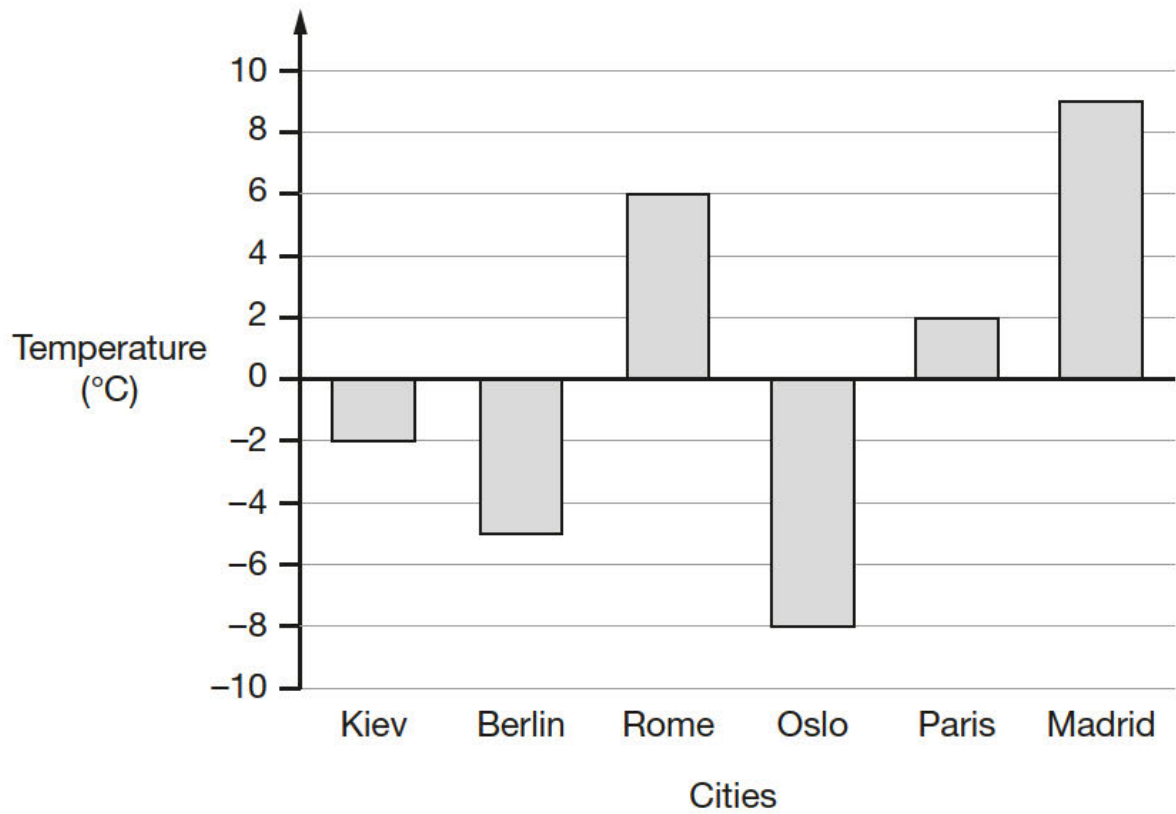
Which city was 8 degrees warmer than Kiev?

....

1 mark

What was the <u>difference</u> between the temperature in Rome and the temperature in Oslo?

....

1 mark

9.

I have a fair six-sided dice, numbered **4**, **9**, **12**, **16**, **20** and **24**

I am going to roll the dice.

(a)   What is the probability of rolling a **multiple of 4**?

....

1 mark

(b)   What is the probability of rolling a **square number**?

....

1 mark

10.

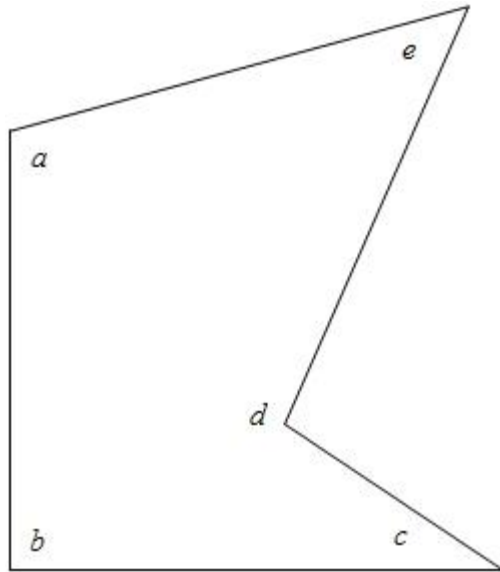Write a **negative number** in the box to make the inequality correct.

$-3 <$ ☐

1 mark

11. What sum?

I'm thinking of a number. I work out the product of **8** and my number.

The answer is **24.** What is my number?

....

1 mark

12.

Complete the following sentences.

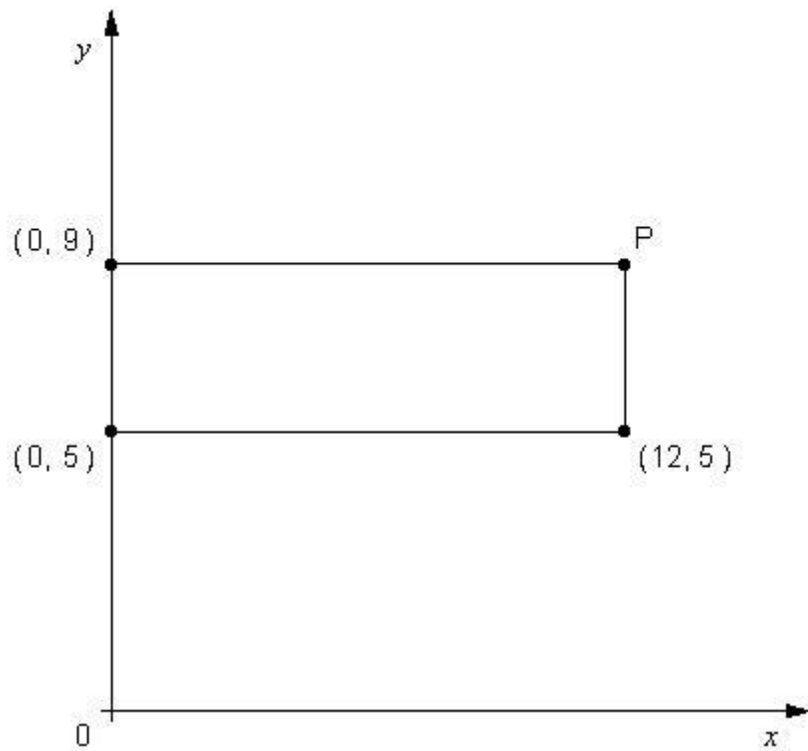Angle _____ is a **right angle.**

Angle _____ is an **acute** angle.

Angle _____ is an **obtuse** angle.

3 marks

13. Finding points

The graph shows a **rectangle**.

Not drawn accurately

Write the coordinates of point P

(............... , ...)

2 marks

14. Divisibility

(a)   Tick (✔) all the numbers below that **divide by 5** with no remainder.

☐ 12   ☐ 15   ☐ 16   ☐ 20   ☐ 30

1 mark

(b)   Tick (✔) all the numbers below that **divide by 3** with no remainder.

☐ 12   ☐ 15   ☐ 16   ☐ 20   ☐ 30

1 mark

(c)   Tick (✔) all the numbers below that **divide by 15** with no remainder.

☐ 12   ☐ 15   ☐ 16   ☐ 20   ☐ 30

1 mark

15. Bicycles

In a survey, pupils were asked if they owned a bicycle.

Results:

$\dfrac{3}{8}$ of the pupils said **'Yes'**.

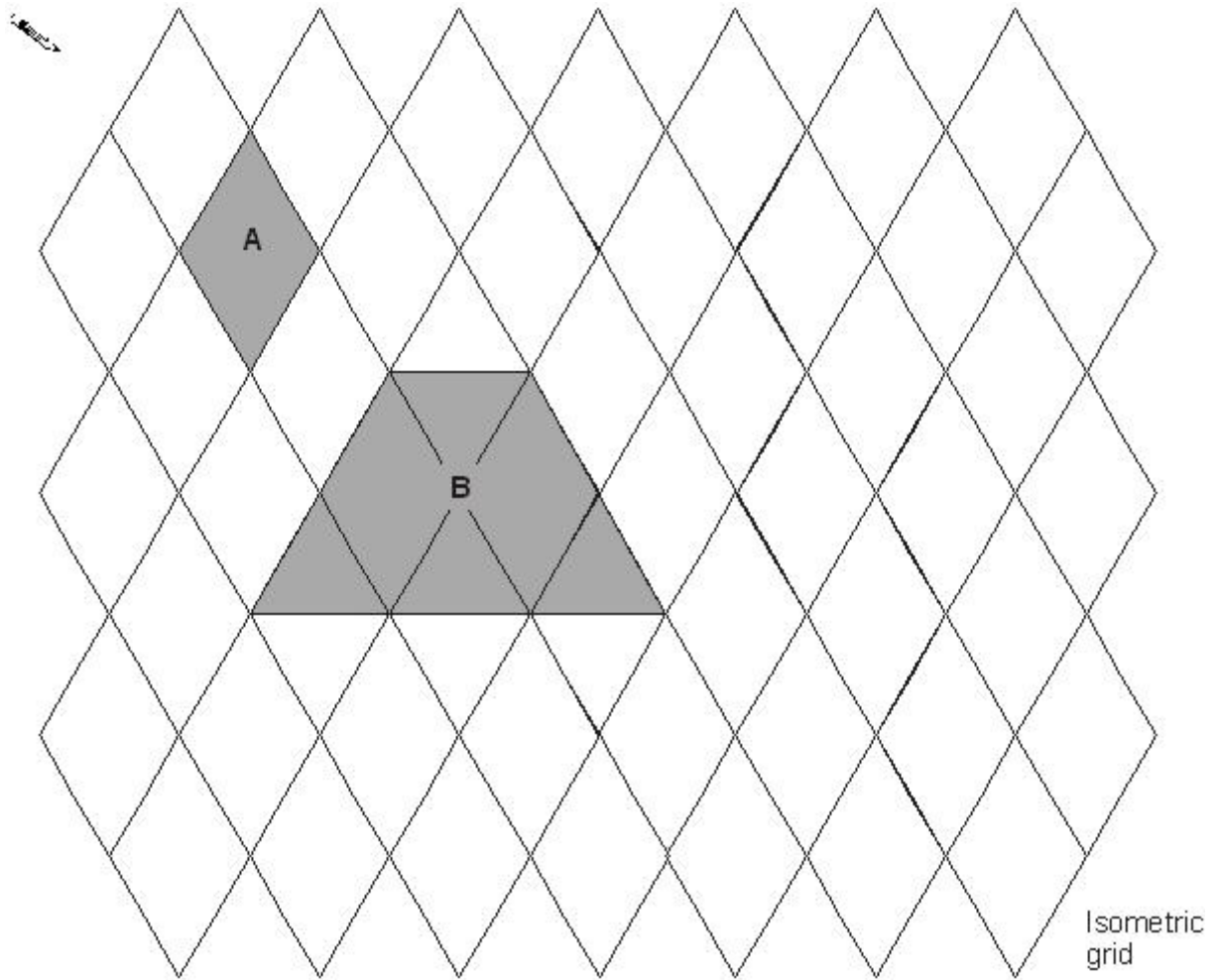$\dfrac{5}{8}$ of the pupils said **'No'**.

46 more pupils said 'No' than said 'Yes'.

Altogether, how many pupils were in the survey?

....

3 marks

16. Rhombus grid

Look at the shaded shapes.

Isometric grid

(a)   The area of shape **A** is **3cm²**

What is the area of shape **B**?
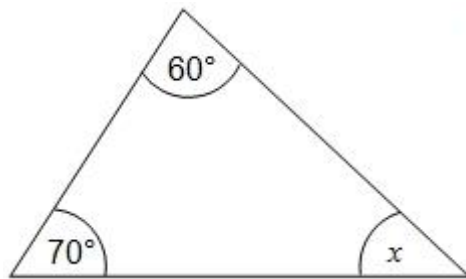
.... cm²

1 mark

(b)   On the grid, draw a **triangle** that has an area of **6cm²**

1 mark

17. Angle facts

(a)   Work out the size of the angle marked x

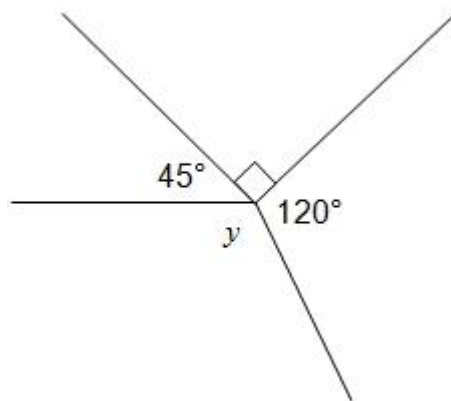Not drawn accurately

_____

_____

_____

.... degrees

2 marks

(b)   Work out the size of the angle marked y

Not drawn accurately

_____

_____

_____

.... degrees

2 marks

18. Matching expressions

Match each statement to the correct expression.

The first one is done for you.

Statement	Expression
Add 2 to a	2
	$2 - a$
Subtract 2 from a	$a + 2$
Multiply a by **2**	$2a$
	$a - 2$
Divide a by **2**	$\frac{2}{a}$
	a^2
Multiply a by **itself**	$\frac{a}{2}$

4 marks

19. Two shapes

The pie chart below shows the chosen method of transport for **90 pupils** in year 7.
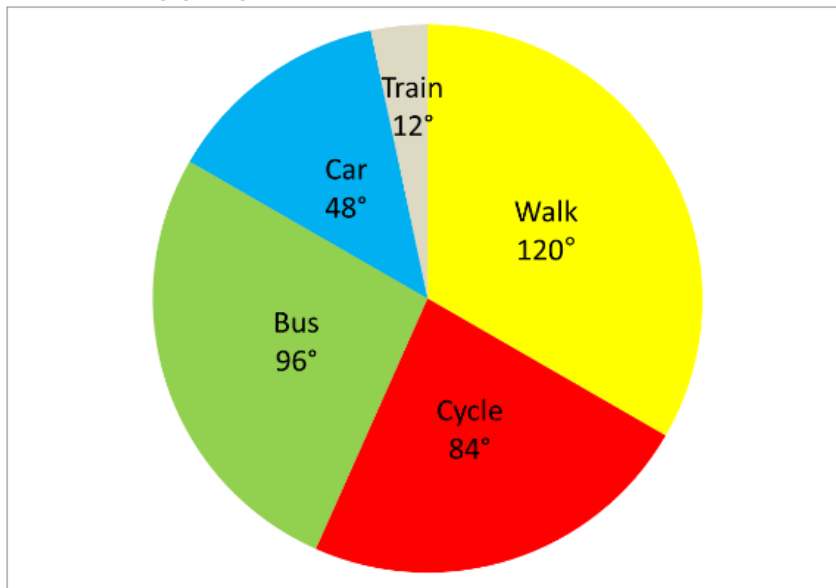
How many pupils chose to **walk** to school?
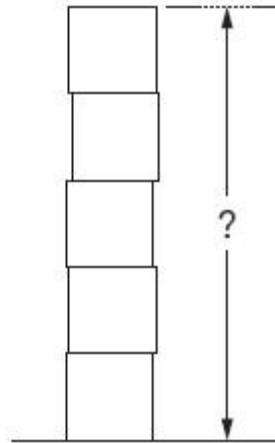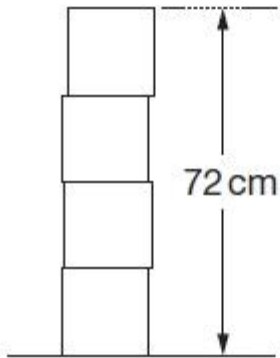
....

2 marks

20. Boxes

Lisa has some boxes that are all cubes of the same size.

She uses four of the boxes to make a pile with a height of **72 cm**.

She puts one more box on top of the pile.

Work out the height of the pile of **five** boxes.

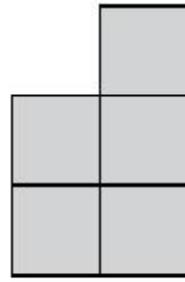.............................. cm

3 marks

21. Two shapes

Shape A and shape B are each made from five identical squares.
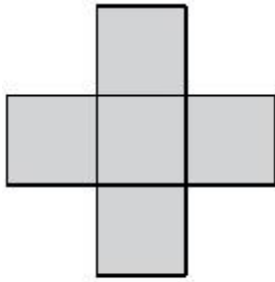
Not drawn accurately

The **perimeter** of shape A is **72cm**.

Work out the **perimeter** of shape B.

.... cm

3 marks

22. Pencils and rulers

Nadia has £5 to buy pencils and rulers.

Prices	
Pencils	8p each
Rulers	30p each

She says,

    "I will buy 15 pencils.

    Then I will buy as many rulers as possible."

How many rulers does she buy?

.... rulers

3 marks

23. Function Machine

Here is a number machine.

input ⟶ × 18 ⟶ −21 ⟶ output

Complete this table for the number machine.

Input	Output
0.5	....
2	15
3	....
....	33

3 marks

24. Number grid

The numbers 1 to 12 are put in a grid.

2, 4, 5, 7, 10 and 12 are shown.

		5	10
12			
4			
7		2	

Each of the four sides of the grid must add up to 26

Complete the grid using the numbers

1, 3, 6, 8, 9 and 11

3 marks

25. Sums of squares

Exactly one of these statements is correct. Which one?

Circle the correct answer:

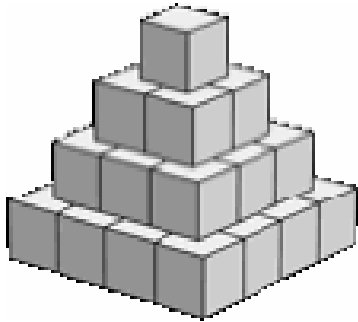A $44^2 + 77^2 = 4477$ B $55^2 + 66^2 = 5566$ C $66^2 + 55^2 = 6655$

D $88^2 + 33^2 = 8833$ E $99^2 + 22^2 = 9922$

3 marks

26. Pyramid

The diagram shows a pyramid made up of 30 cubes, each measuring 1m × 1m × 1m.

What is the total surface area of the entire pyramid, including its base?

Circle the correct answer:

A 30 m²   B 62 m²   C 72 m²   D 152 m²   E 180 m²

2 marks

Total 85 Marks