Ma

KEY STAGE
3

TIER
3–5

2009

Mathematics test

Paper 2

Calculator allowed

First name _____

Last name _____

School _____

Remember

- The test is 1 hour long.
- You **may** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler, tracing paper and mirror (optional) and a calculator.
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

TOTAL MARKS	

Instructions

Answers

This means write down your answer or show your working and write down your answer.

Calculators

You **may** use a calculator to answer any question in this test.

1. The table shows the items sold in a school shop in one week.

	Mon	Tue	Wed	Thu	Fri
Pencil	25	18	13	21	16
Pen	17	20	19	9	12
Ruler	5	1	2	6	8
Protractor	5	1	4	3	2
Compasses	5	1	2	1	0

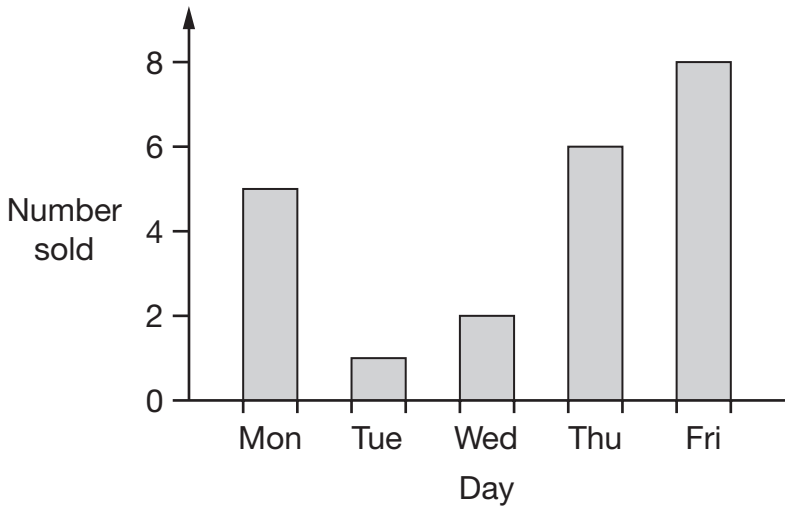
(a) How many **pens** were sold in the shop on **Wednesday**?

1 mark

(b) On what day did the shop sell **2 protractors**?

1 mark

(c) The bar chart shows information for **one** of the items.



Which item is this?

1 mark

2. Write the missing numbers in the boxes.

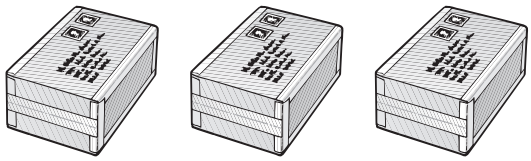
$\square \times 9 = 234$

1 mark

$81 \div \square = 27$

1 mark

3. Lauren wants to post three parcels.



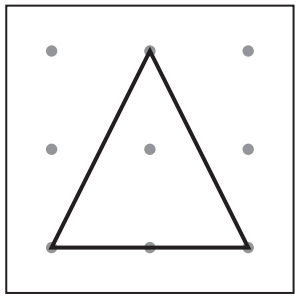
Each parcel costs **£1.30** to post.

How much change should she get from **£10**?

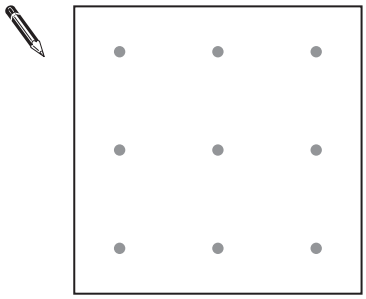
£

2 marks

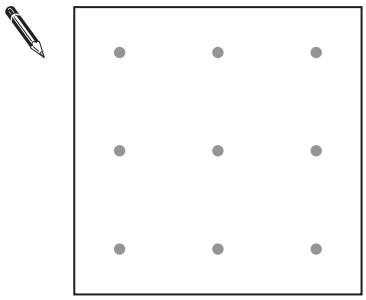
4. Here is a triangle made using the pins on a pin board.



Show how to make a **square**. Use the pins below.

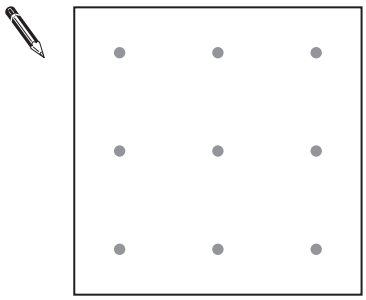


Now show how to make a **different sized square**. Use the pins below.



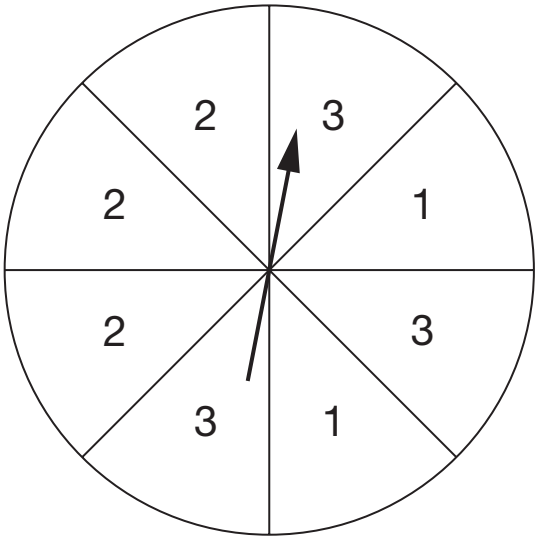
Now show how to make **another square** which is a **different size** to the ones you have drawn.

Use the pins below.



2 marks

5. Here is a fair spinner divided into 8 equal sections.



I am going to spin the pointer.

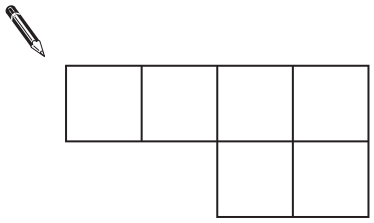
For each statement below, tick (✓) True or False.

	True	False
I am **equally likely** to spin a 2 as to spin a 3	☐	☐
I am **more likely** to spin an even number than an odd number.	☐	☐
It is **impossible** that I will spin a number less than 2	☐	☐
It is **certain** that I will spin a number less than 4	☐	☐

2 marks

6. The shapes in this question are drawn on square grids.

(a) Shade $\frac{1}{2}$ of the shape below.



1 mark

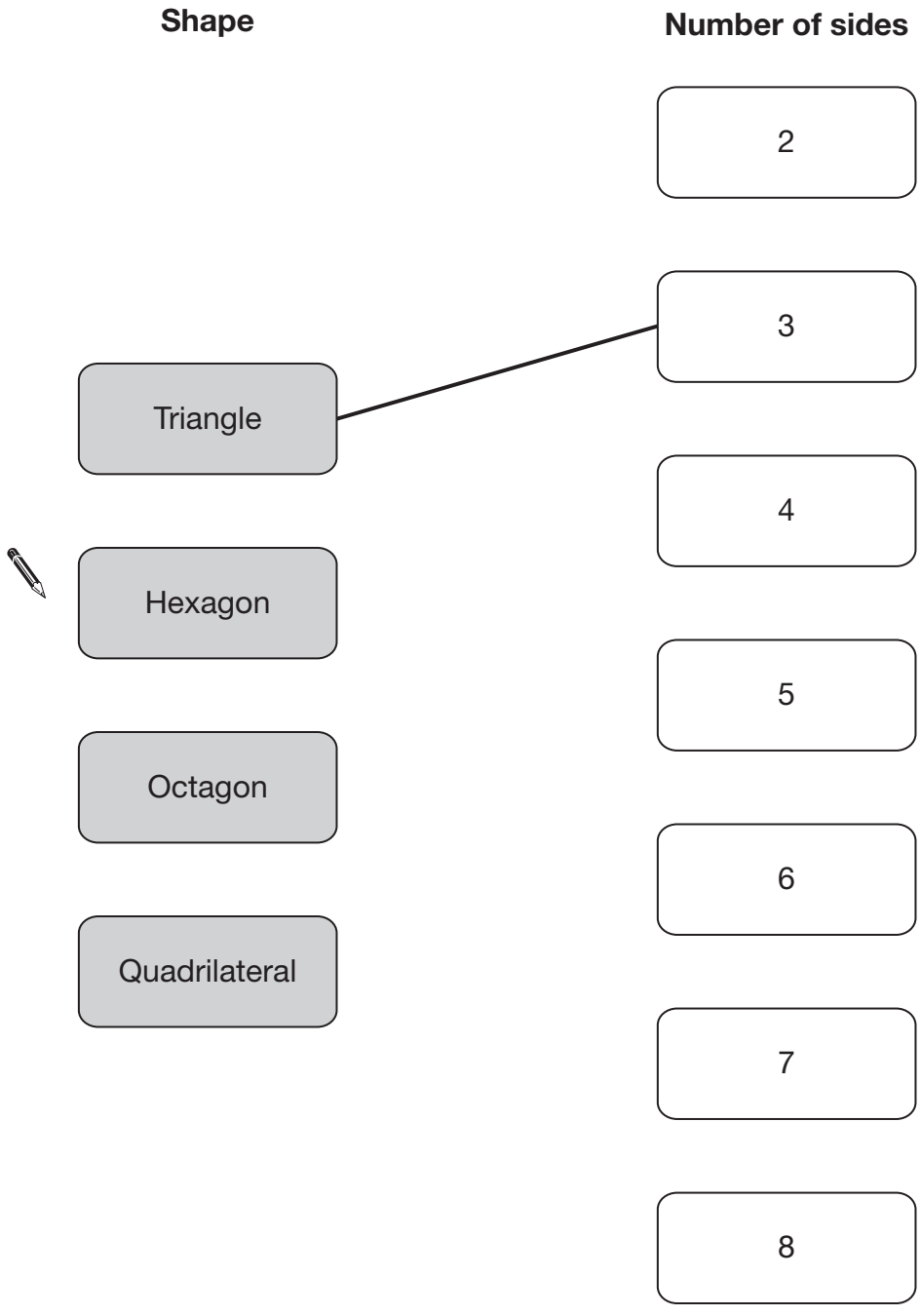
(b) What **fraction** of the shape below is shaded?

1 mark

7. How many **sides** do these shapes have?

Draw lines to match each shape to the correct box.

The first one is done for you.



2 marks

8. In this grid, the numbers **1**, **2** and **3** are in **each row** and **each column**.

2	1	3
3	2	1
1	3	2

Now complete this grid so that the numbers **1**, **2** and **3** are in **each row** and **each column**.

	3	
	1	2

2 marks

9. Complete the table to show the different times in words and on a digital clock.

The first row is done for you.

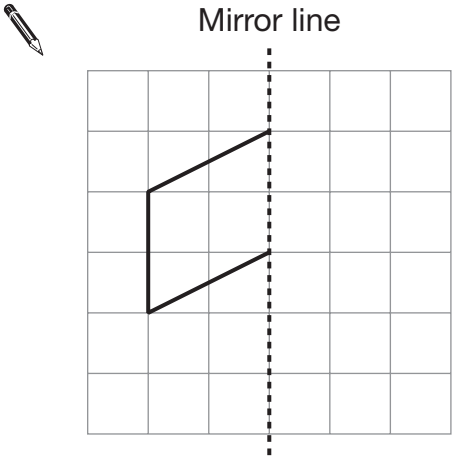
Time in words	Time on digital clock
Half past twelve	12 : 30
Quarter to eleven	
	10 : 05

1 mark

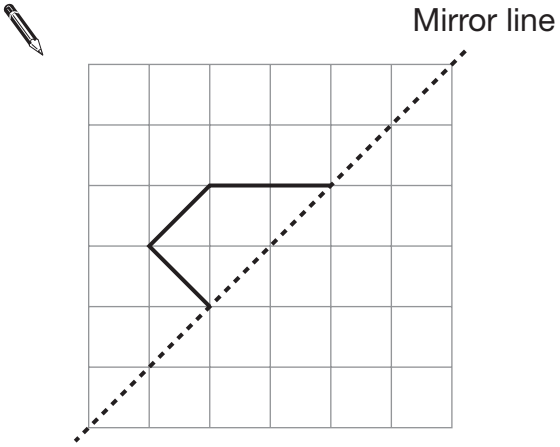
1 mark

10. The diagrams in this question are drawn on square grids.

Reflect the shapes in the mirror lines.



1 mark



1 mark

11. The table shows the cost of tickets for visiting a castle.

Tickets	
Family	**£17.00**
Adult	**£6.50**
Child	**£4.50**

Two adults and two children visit the castle.

They buy a **family** ticket.

How much **more** would it have cost to buy **two adult** tickets and **two child** tickets?

£

2 marks

12. Pupils take a test that has three different papers.

Each pupil adds their marks from all three papers to find their total mark.

The table shows how to change the total mark to a grade.

Total mark	Grade
104 or more	A
From 79 to 103	B
From 53 to 78	C
From 34 to 52	D
33 or less	E

(a) Here are Simon's marks.

Paper 1	Paper 2	Paper 3
26 marks	33 marks	18 marks

What grade did Simon get on the test?

grade _____

1 mark

(b) Here are Jenna's marks from paper 1 and paper 2

Paper 1	Paper 2	Paper 3
48 marks	35 marks	?

Jenna's grade on the test was **grade A**.

Complete the sentence below.

Jenna must have scored **at least** _____ marks on paper 3

1 mark

13. (a) Write the missing numbers in the sentences below.

2735 rounded to the **nearest hundred** is _____

1 mark

2735 rounded to the **nearest thousand** is _____

1 mark

(b) Give an example of what the missing number could be in the sentence below.

_____ rounded to the **nearest ten** is **800**

1 mark

14. Here is some information about a baby.

> He was born on 2nd March 2005.
>
> He smiled for the first time on 30th March 2005.
>
> His first tooth appeared on 2nd December 2005.

(a) **How many weeks** old was the baby when he smiled for the first time?

_____ weeks

1 mark

(b) **How many months** old was the baby when his first tooth appeared?

_____ months

1 mark

15. (a) I count on in **equal steps**.

My fourth number is 42, my fifth number is 47

?			42	47

What is my first number?

1 mark

(b) I count on in **equal steps**.

My first number is –3, my fifth number is 5

–3		?		5

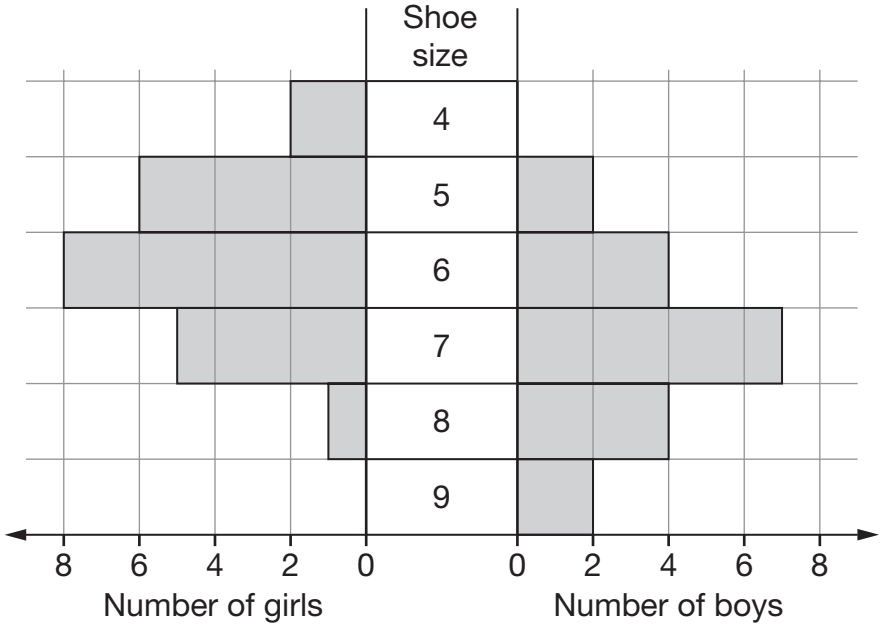
What is my third number?

2 marks

16. Kim asked some pupils:

> To the nearest whole number, what is your shoe size?

The chart shows her results.



(a) How many pupils had **size 6** shoes?

1 mark

(b) Kim asked **more girls** than boys.

How many more?

1 mark

(c) Who had the bigger **range** of shoe sizes?

☐ Girls ☐ Boys ☐ Both the same

Explain your answer.

1 mark

17. Find the values of x and y

$694 + 396 + x = 1742$

$x =$ _____

1 mark

$y \div 13 = 34$

$y =$ _____

1 mark

18. Dan says:

'All **factors of 70** are even numbers.'

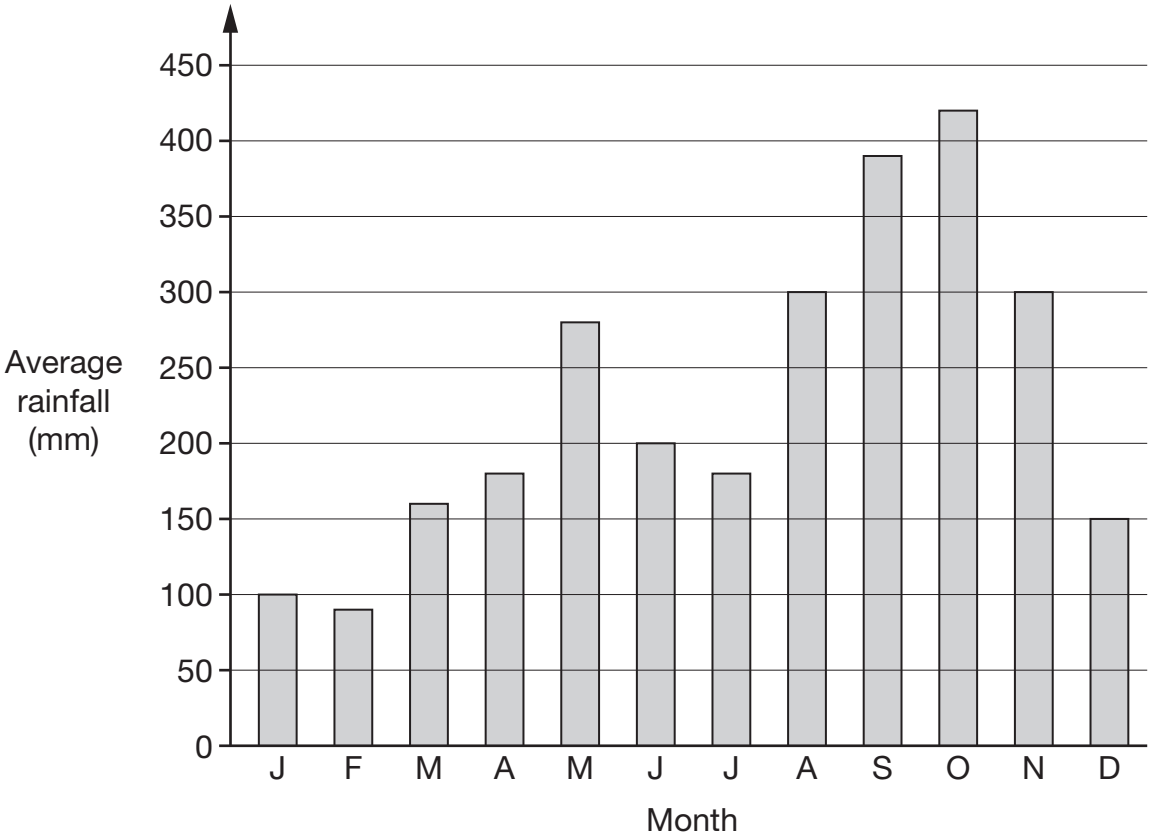
Is he correct?

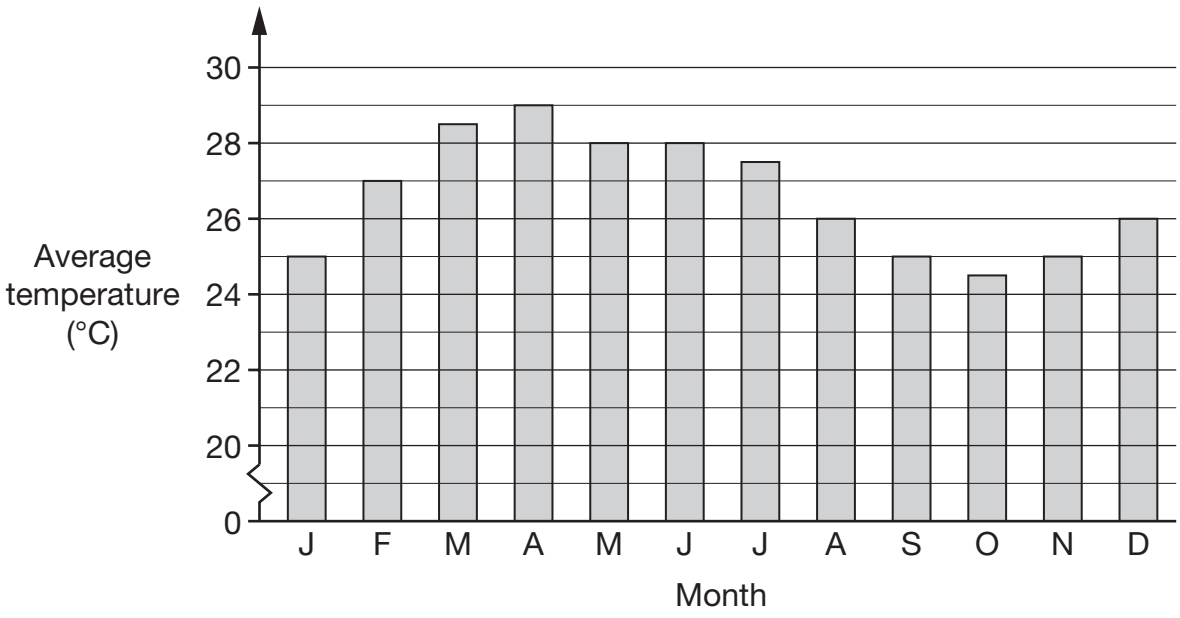
☐ Yes ☐ No

Explain your answer.

1 mark

19. The charts show information about a rainforest.





Use the charts to answer these questions.

(a) In the month that has the **lowest** average **rainfall**, what is the average **temperature**?

_____ °C

1 mark

(b) In the month that has the **highest** average **temperature**, what is the average **rainfall**?

_____ mm

1 mark

(c) Sanjay has decided to visit the rainforest.

He does **not** like high temperatures and does **not** like high rainfall.

In which month do you think Sanjay should visit?

Put a ring round the correct month below.

January March April

October December

1 mark

20. Complete the table to show what the units measure.

The first row is done for you.

	Length	Area	Volume	Mass
Centimetres	✓			
Litres				
Miles				
Grams				
Square metres				
Ounces				

2 marks

21. Here are the prices of doughnuts at two different shops.

Shop A	Shop B
3 doughnuts for £2	5 doughnuts for £3.50

I want to buy **15** doughnuts.

In which shop are the doughnuts **cheaper**?

You **must** show your working.

Tick (✓) your answer.

☐ Shop A ☐ Shop B

2 marks

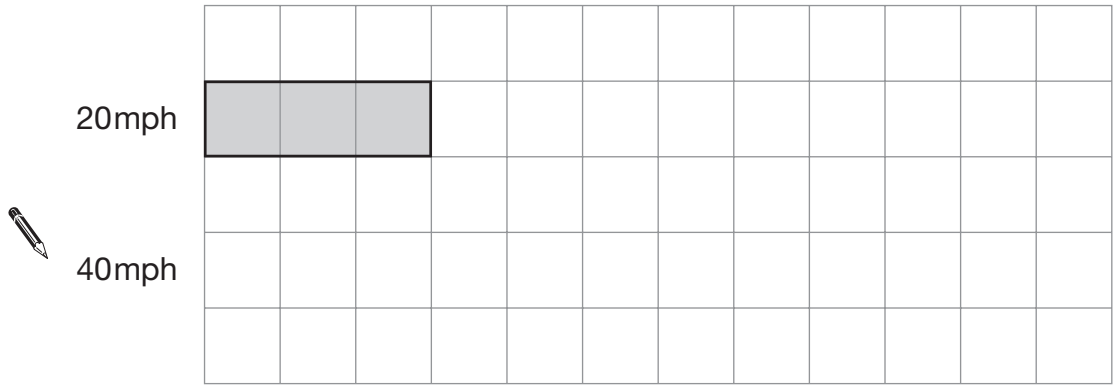
22. The table shows the stopping distances for a car at different speeds.

Speed	Stopping distance
20 mph	12 metres
40 mph	36 metres
60 mph	72 metres

(a) Look at the square grid below.

It shows the bar for the stopping distance at 20 mph.

Use the same scale to draw the bar for the stopping distance at **40 mph**.



1 mark

(b) The bar for the stopping distance at 60 mph will not fit on the grid.

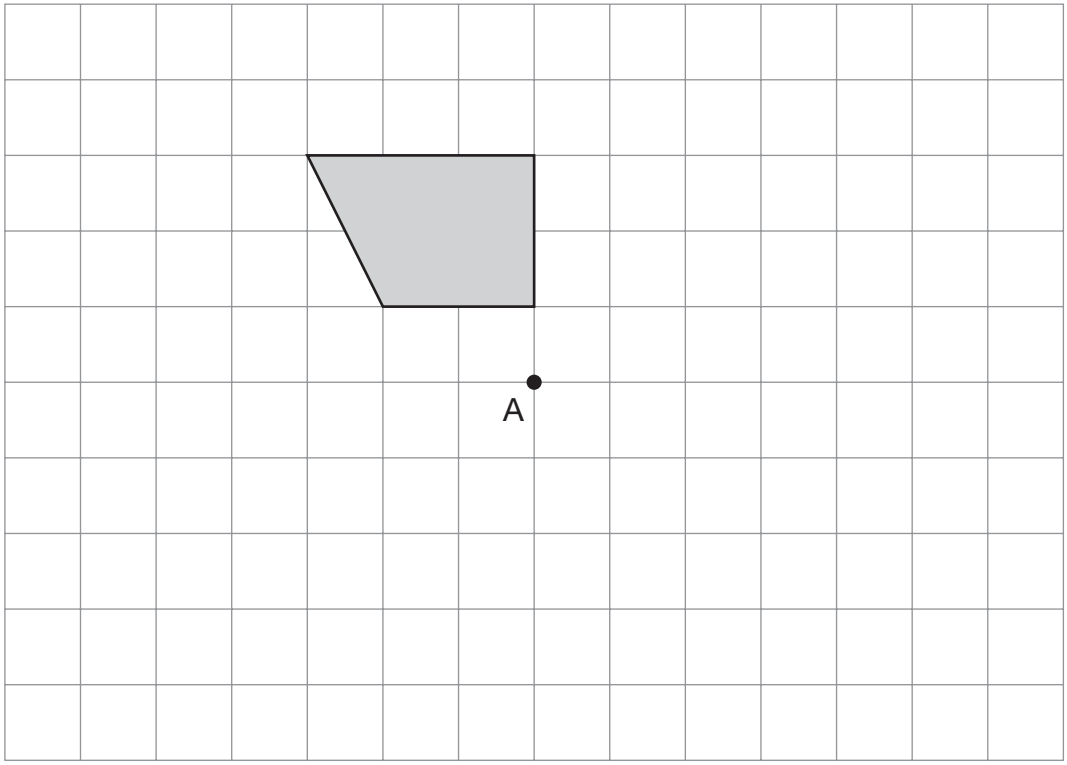
How many squares long should the bar be?

1 mark

23. Here is a shaded shape drawn on a square grid.

Rotate the shape **180°** about point A.

Draw the shape in its new position on the grid.



2 marks

24. Use $a = 7$ and $b = 28$ to work out the value of these expressions.

The first one is done for you.

$a + b =$ *35*

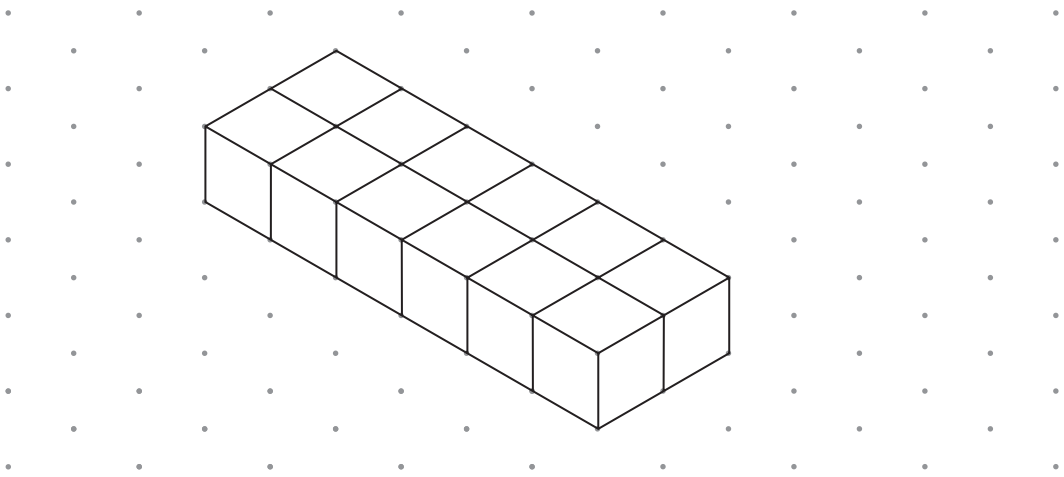
$ab =$ _____ 1 mark

$\frac{b}{a} =$ _____ 1 mark

$(a + b)^2 =$ _____ 1 mark

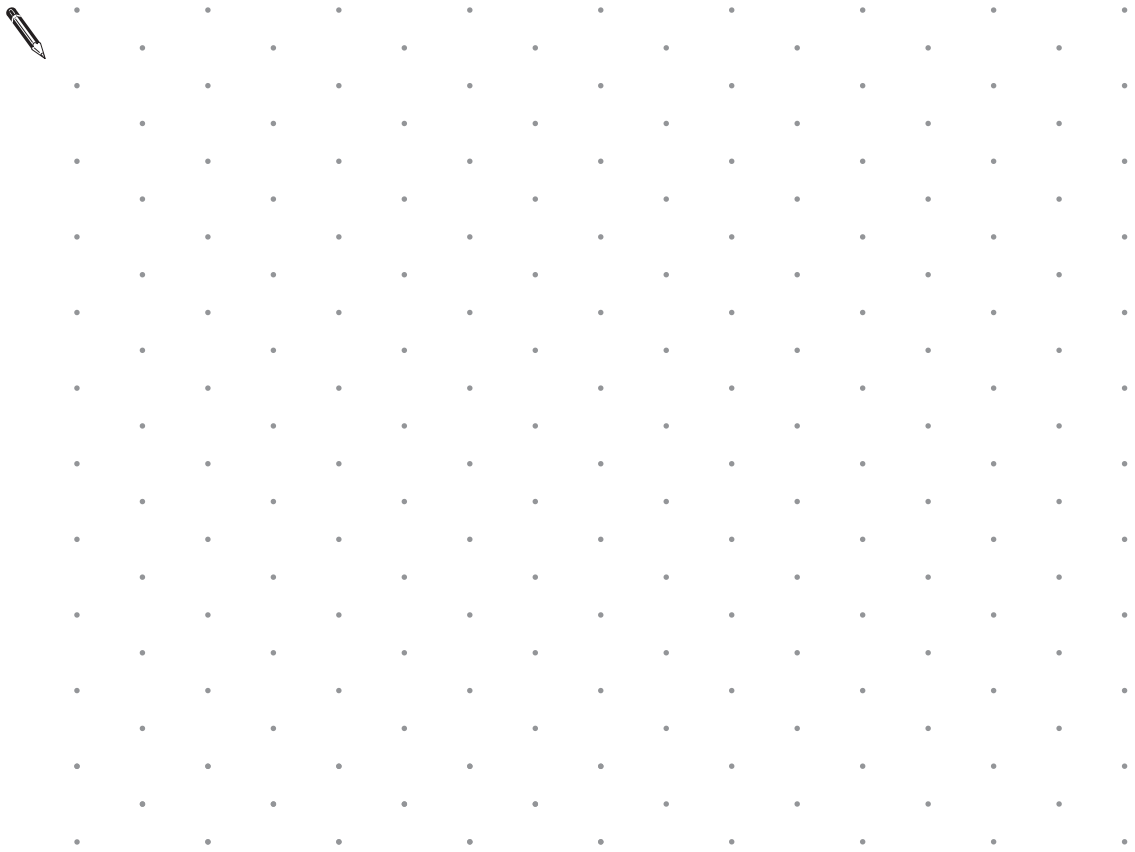
25. Look at the cuboid drawn on the grid.

It is made from **12 cubes**.



Isometric grid

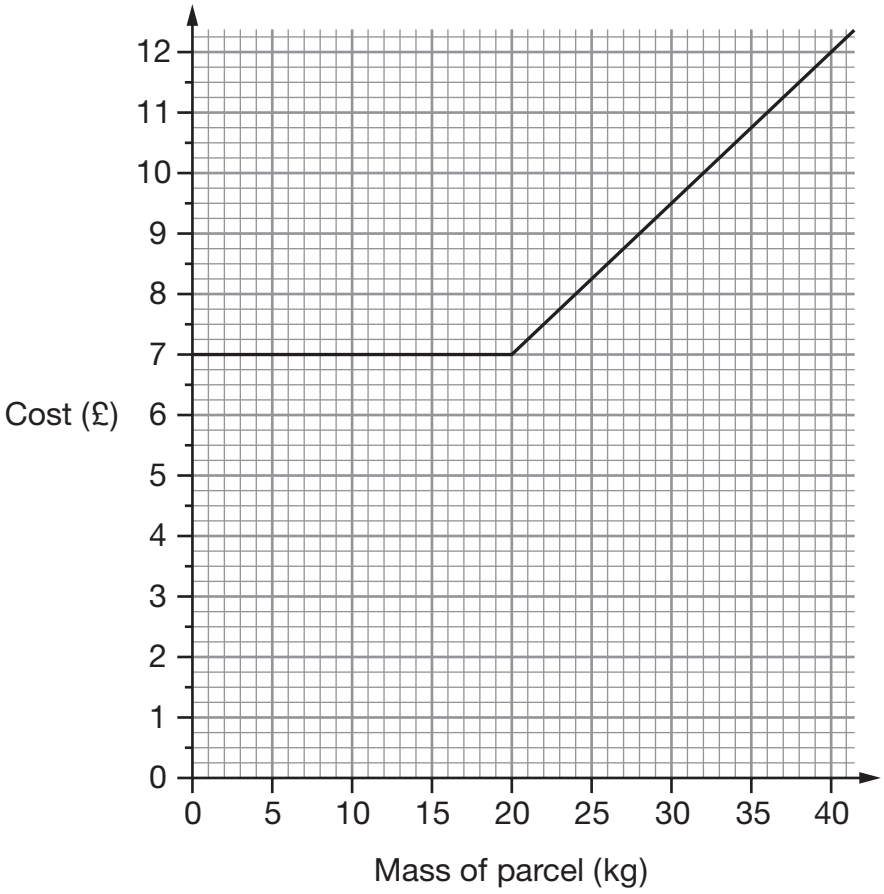
On the grid below, draw a **different** cuboid made from 12 cubes.



2 marks

Isometric grid

26. The graph shows how much a company charges to deliver parcels.



(a) Use the graph to complete the sentences below.

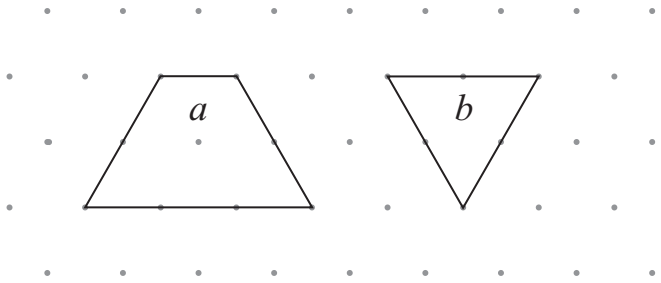
The company charges exactly £ _____ for parcels up to _____ kg. _____ 1 mark

Then for **each** extra kilogram the company charges another _____. _____ 1 mark

(b) Altogether, how much would the company charge to deliver two parcels, one of **15 kg** and one of **37 kg**?

£ _____ 1 mark

27. The diagram below shows a trapezium and an equilateral triangle.



Isometric grid

The **trapezium** has area $\boldsymbol{a}$

The **triangle** has area $\boldsymbol{b}$

(a) On the grid below, draw a shape with area $\boldsymbol{a} + \boldsymbol{2b}$

Isometric grid

1 mark

(b) On the grid below, draw a shape with area $\boldsymbol{a} - \boldsymbol{b}$

Isometric grid

1 mark

END OF TEST

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