Ma

KEY STAGE
3

TIER
3–5

2009

Mathematics test

Paper 1

Calculator **not** allowed

First name _____

Last name _____

School _____

Remember

- The test is 1 hour long.
- You **must not** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler, tracing paper and mirror (optional).
- 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

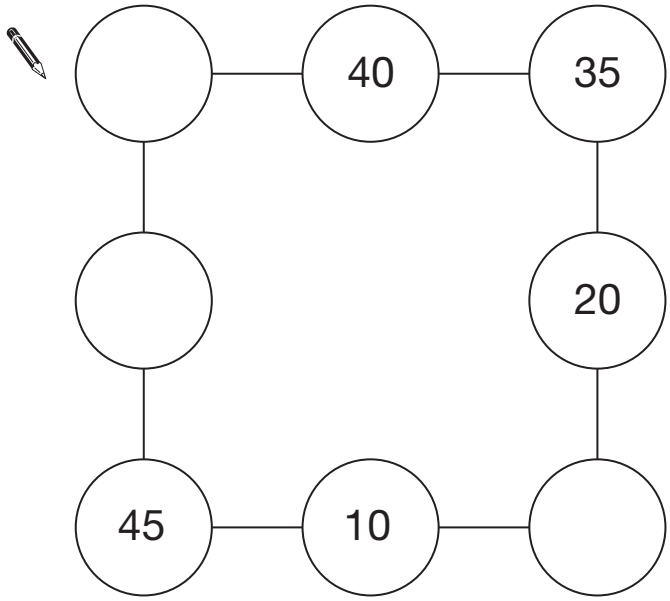
This means write down your answer or show your working and write down your answer.

Calculators

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

1. In the diagram, three circles in a straight line must **add up to 100**

Write in the missing numbers.



2 marks

2. In a restaurant, the colour of each dish shows how much the food in it costs.

The table shows the different colours and costs.

Colour of dish	Cost
Green	£1.50
Blue	£2.00
Red	£2.50
Orange	£3.00
Pink	£3.50

(a) Meera pays for **two blue** dishes and **two pink** dishes.

Altogether, how much did they cost?

£ _____

1 mark

(b) Victor pays for one **green**, one **red** and one **pink** dish.

He pays with a **£10 note**.

How much change should he get?

£ _____

2 marks

(c) Rachel pays for **two dishes** that cost **exactly £4.50** altogether.

What colours could her dishes be?

There are two possible answers. Write them both.

colours: _____ and _____

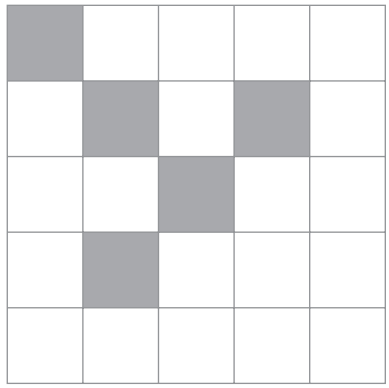
1 mark

or colours: _____ and _____

1 mark

3. (a) This diagram has **one line of symmetry**.

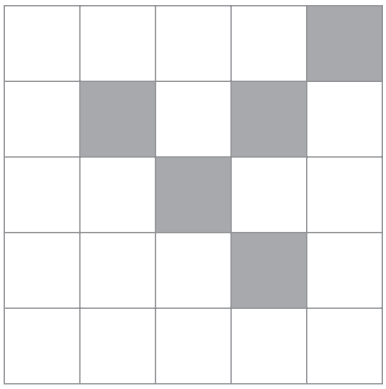
Draw the line of symmetry on the diagram below.



Square grid

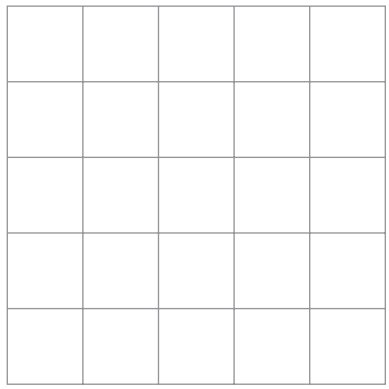
1 mark

(b) Here is the same diagram after a **quarter-turn clockwise**.



Square grid

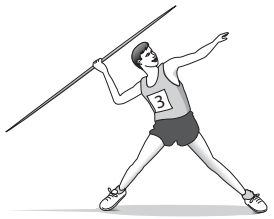
Complete the diagram below to show it after **another quarter-turn clockwise**.



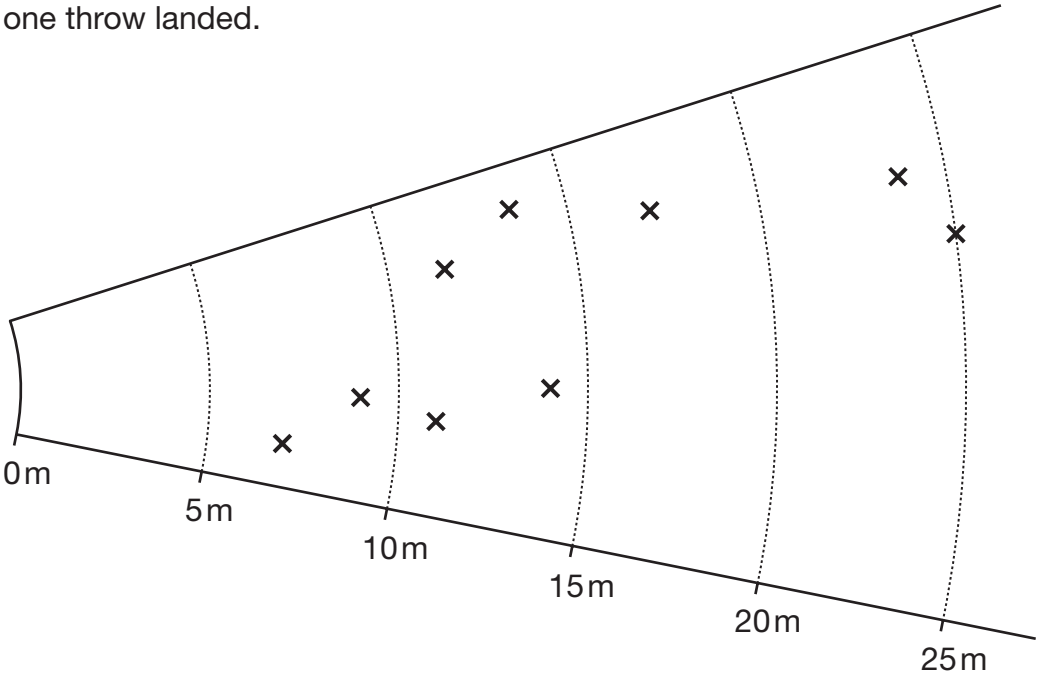
Square grid

1 mark

4. At a school sports day, nine pupils threw the javelin.



In the diagram, each cross shows where one throw landed.



(a) One throw was **between 15m and 20m** long.

About how long was this throw?

_____ m

1 mark

(b) How many throws were **between 10m and 15m** long?

_____

1 mark

(c) About how much **further** was the longest throw than the shortest throw?

_____ m

1 mark

5. Look at the digit cards numbered from 1 to 9

1	2	3	4	5	6	7	8	9

Use the digit cards to complete the calculations below.

You can use each card more than once.

□ + □ = □□

1 mark

□ × □ = □□

1 mark

□□ − □ = □□

1 mark

□□ ÷ □ = □

1 mark

6. Here is a picture of Fred standing outside his house.

(a) Which measurement below is most likely to be **Fred's height**?

Put a ring round the correct answer.

0.8 metres 1.8 metres 2.8 metres 3.8 metres

1 mark

(b) Which measurement below is most likely to be the **height** of **Fred's house**?

Put a ring round the correct answer.

1 metre 7 metres 17 metres 27 metres

1 mark

7. (a) Kate has **one 10p** coin, **one 50p** coin and some 20p coins.

Altogether she has **£1.20**

How many **20p** coins does she have?

1 mark

(b) Show the different ways of making **£1.60** using **two 50p coins**, and 20p and 10p coins.

The first way is done for you.

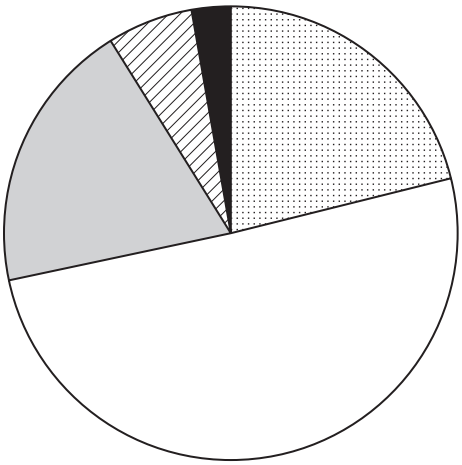
	Number of 50p coins	Number of 20p coins	Number of 10p coins
First way:	2	3	0
Second way:	2		
Third way:	2		
Fourth way:	2		

2 marks

8. In a survey, people were asked:

> How good is your doctor?

The pie chart shows the results.



Key:

- Very good
- Satisfactory
- Poor
- Very poor
- Don't know

(a) About what percentage of the people said **'Satisfactory'**?

_____ %

1 mark

(b) Altogether, about what percentage of the people said **'Poor'** or **'Very poor'**?

_____ %

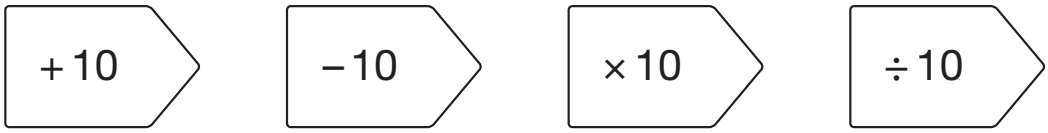
1 mark

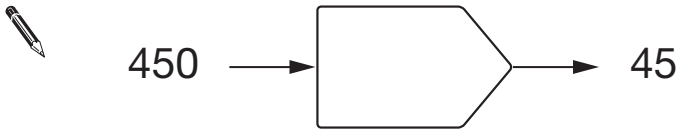
(c) Give one reason why a person may say **'Don't know'**.

1 mark

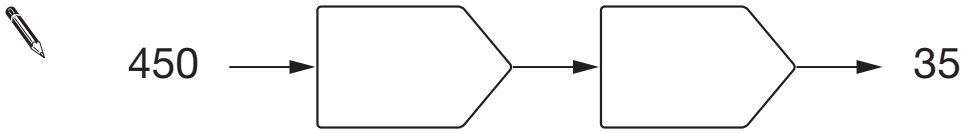
9. Fill in the boxes to complete each number chain.

Use any of the following:

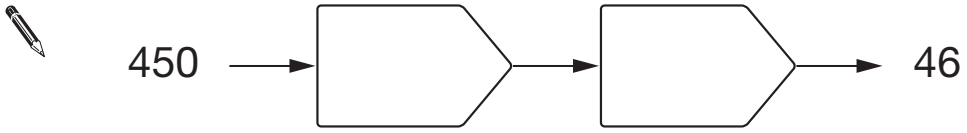




1 mark



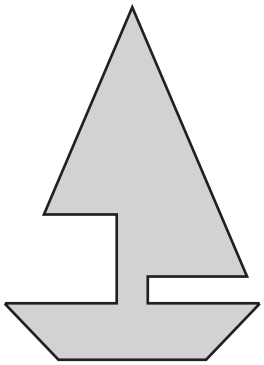
1 mark



1 mark

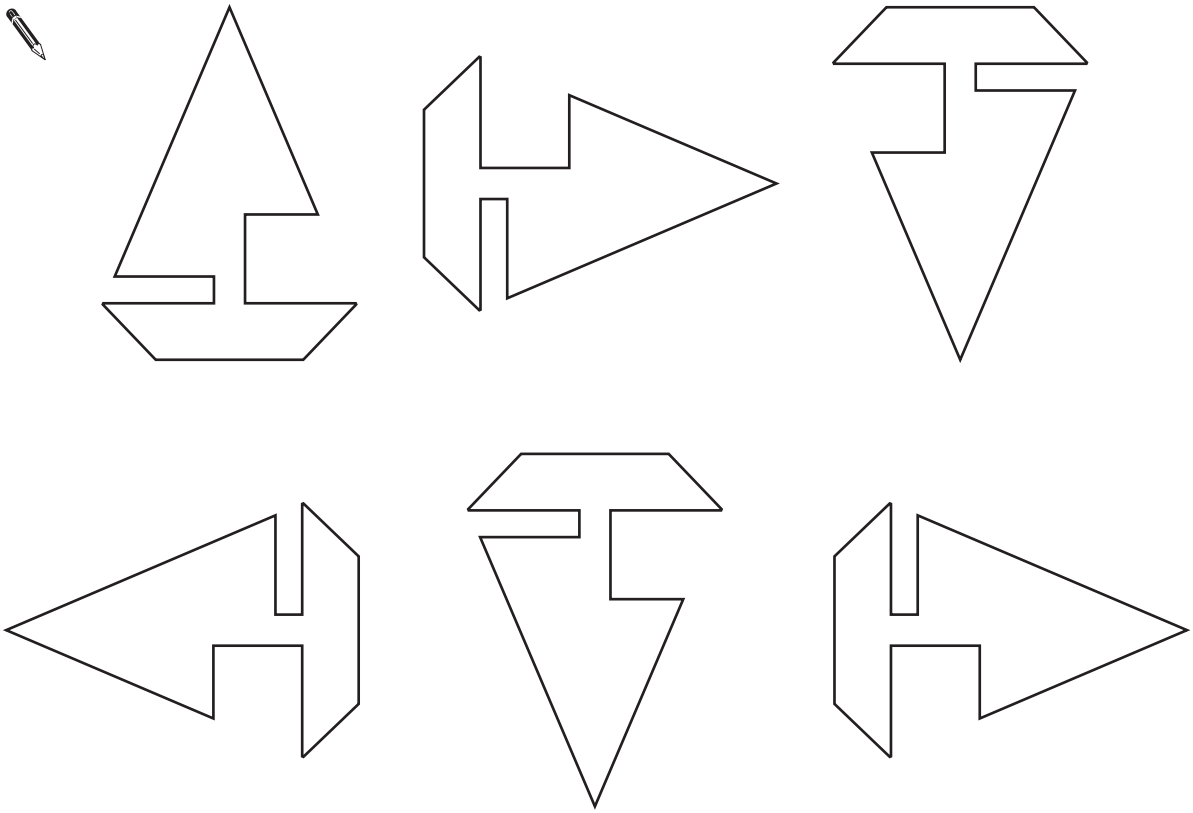
10. Samir has a piece of card that is grey on one side and white on the other.

He cuts out this shape from the card.



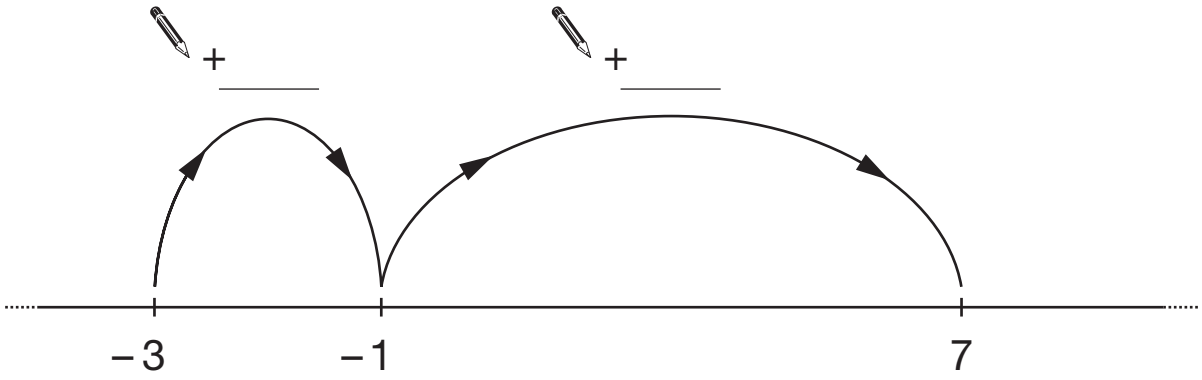
He turns over the shape so that the white side is showing.

Tick (✓) **all** the shapes below that show the **white** side of Samir's shape.

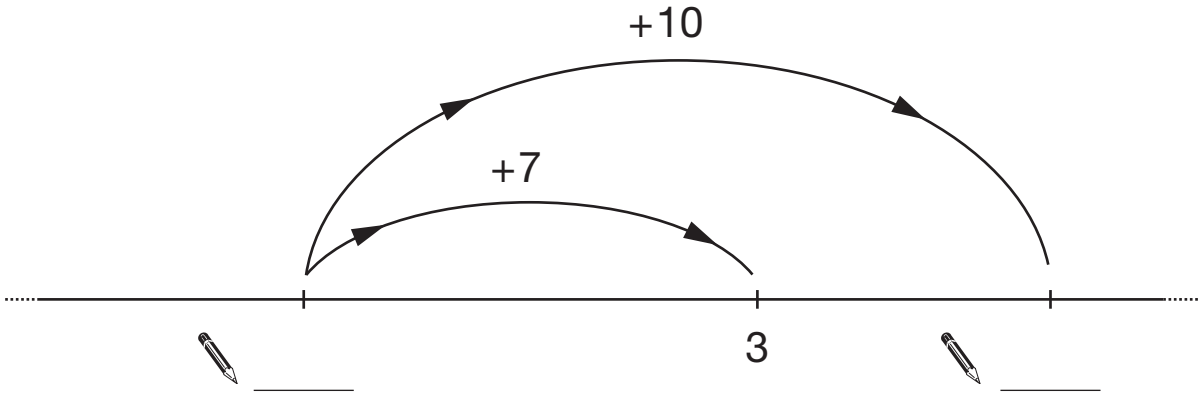


2 marks

11. Write in the missing numbers.



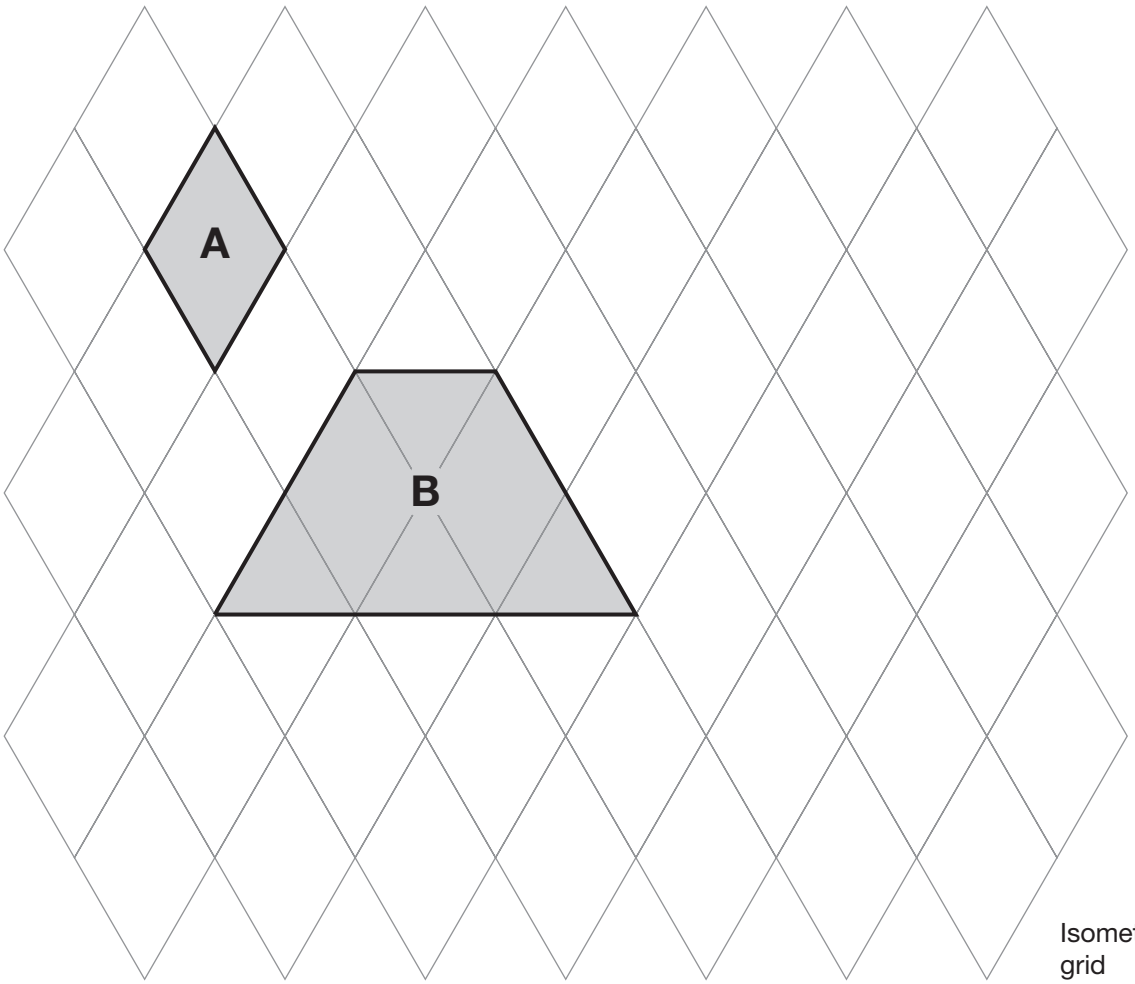
1 mark



1 mark

1 mark

12. Look at the shaded shapes.



Isometric grid

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

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

_____ cm^2

1 mark

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

1 mark

13. Write the missing digits in each calculation below.

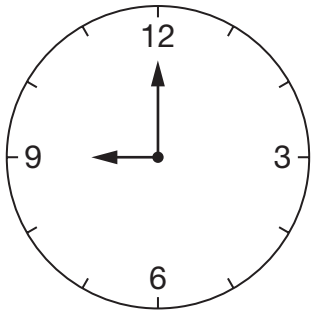
The first one is done for you.

1	9	×	3	=	5	7
		×	3	=	5	1
		×	3	=	4	

1 mark

1 mark

14. (a) I started swimming at **9 am**.



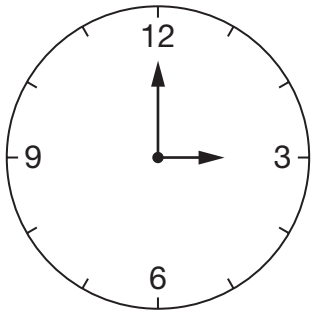
When I finished swimming, the **minute hand** of the clock had **turned 360°**

What time did I finish swimming?

_____

1 mark

(b) I started walking at **3 pm**.



When I finished walking, the **hour hand** of the clock had **turned 90°**

What time did I finish walking?

_____

1 mark

15. Look at this set of four number cards.

20	20	20	20

The **sum** of these numbers is **80**

Now look at the two sets of number cards below.

Set A			
17	18	19	20

Set B			
21	22	23	24

Which set has a **sum** that is **closer to 80**?

☐ Set A ☐ Set B

Explain your answer.

1 mark

16. (a) A number chain starts

$$1 \longrightarrow 2 \longrightarrow 5 \longrightarrow \ldots$$

To find the next number you use the rule **× 3 then − 1**

Write the next two numbers in the number chain.

$$1 \longrightarrow 2 \longrightarrow 5 \longrightarrow \_\_\_\_ \longrightarrow \_\_\_\_$$

1 mark

(b) Here is a different number chain.

$$3 \longrightarrow 9 \longrightarrow 27 \longrightarrow 81 \longrightarrow \ldots$$

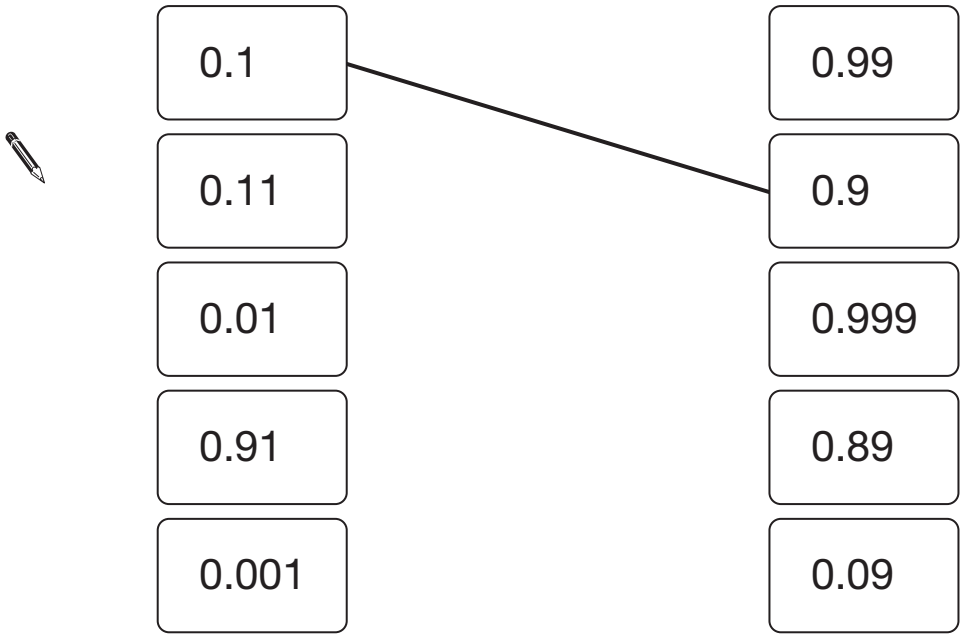
What could the **rule** be to find the next number?

_____

1 mark

17. (a) Join all the pairs of numbers that **add** together to equal **1**

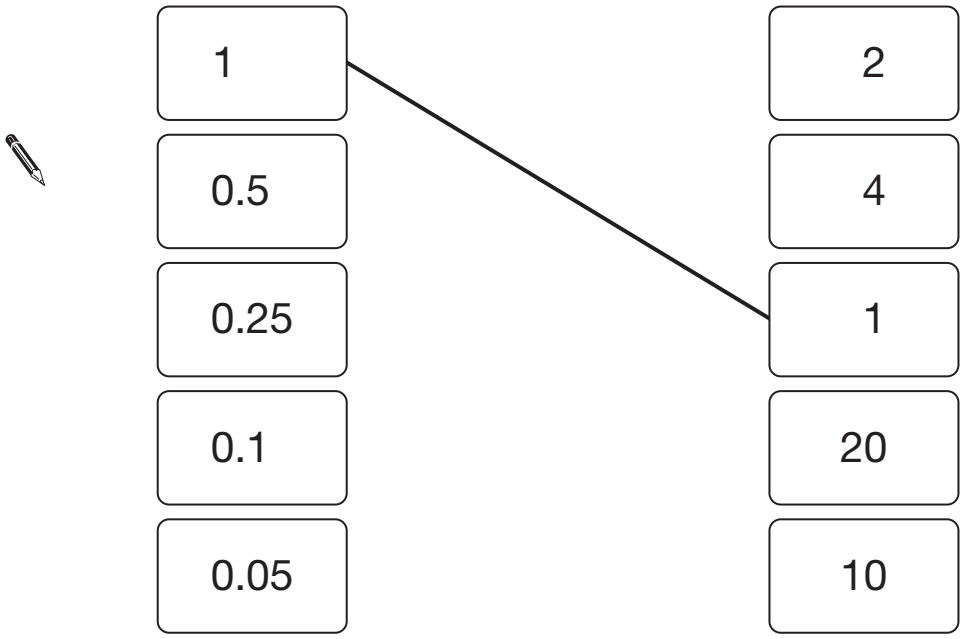
The first one is done for you.



2 marks

(b) Now join all the pairs of numbers that **multiply** to equal **1**

The first one is done for you.



2 marks

18. Paul has **15** T-shirts.

The information shows the colours of his T-shirts.

5 black

3 white

3 red

2 dark blue

1 light blue

1 yellow

Paul is going to take one of his T-shirts at random.

(a) What is the probability that the T-shirt will be **red**?

1 mark

(b) What is the probability that the T-shirt will **not** be **black**?

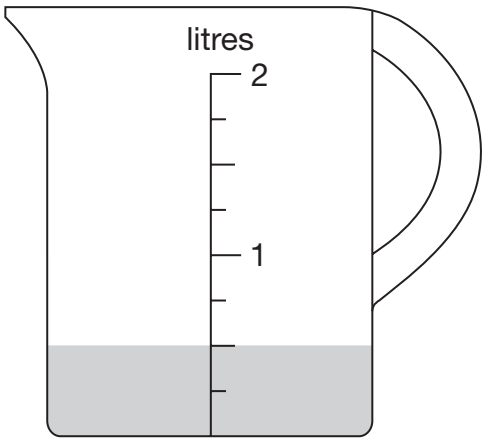
1 mark

(c) He takes one of his **blue** T-shirts at random.

What is the probability that the T-shirt is **light blue**?

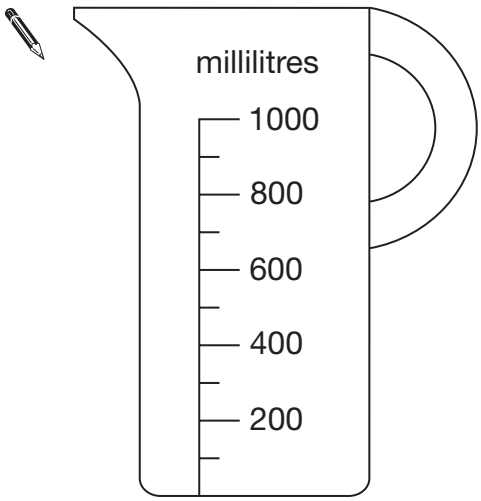
1 mark

19. Zak has some water in a jug.



He pours this water into the jug below.

Draw the correct level of the water on the jug.

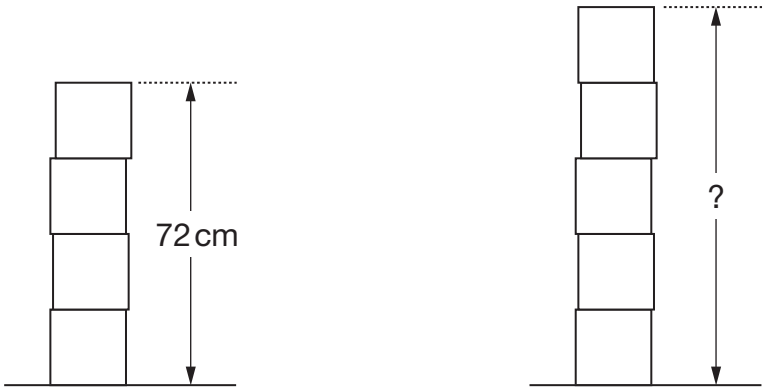


1 mark

20. 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

2 marks

21. (a) Work out **5%** of **360**

1 mark

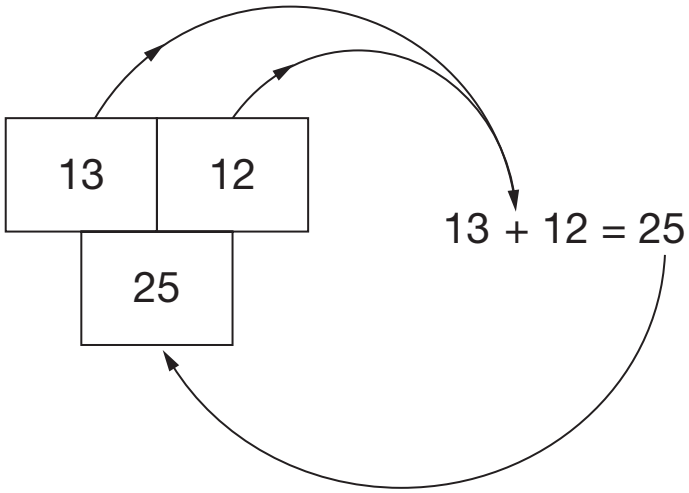
(b) Work out **15%** of **360**

You can use part (a) to help you.

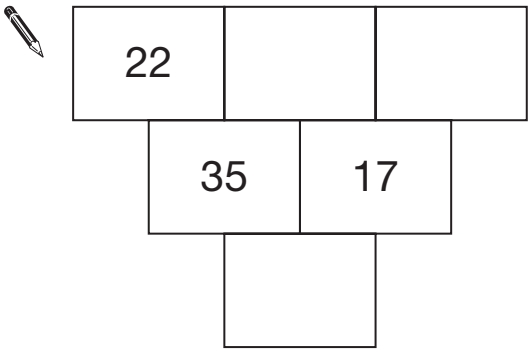
1 mark

22. In these number grids, two numbers are added to give the number below.

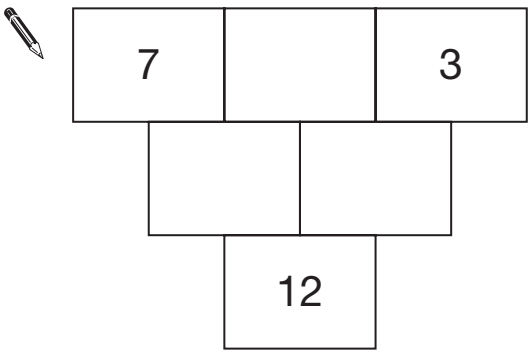
Example:



Write numbers in the number grids below to make them correct.

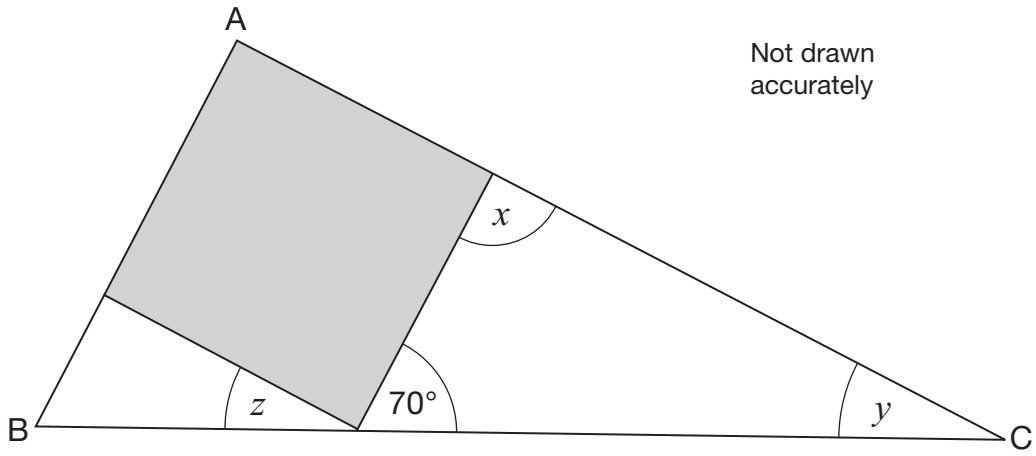


1 mark



1 mark

23. Look at the right-angled triangle ABC.



The square fits exactly inside the triangle.

Work out the sizes of angles x, y and z

$x =$ _____ °

$y =$ _____ °

$z =$ _____ °

3 marks

24. Look at these equations.

$$11 = 6 + a$$

$$a + 7 = 10 + b$$

Use **both** equations to work out the value of b

$b =$ _____

2 marks

END OF TEST

ISBN No: 978-1-84721-701-1

QCA/09/3784 (Pupil pack)
QCA/09/3783 (Mark scheme pack)
290007