

Ma

KEY STAGE

3

TIER

3–5

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 (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.

For marker's use only

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. (a) Draw lines to show **all** the numbers rounded to the nearest hundred.

The first one is done for you.

Number	Nearest hundred
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">912</div>	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">800</div>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">990</div>	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">900</div>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">955</div>	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">1000</div>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">849</div>	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">_____</div>
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">881</div>	<div style="border: 1px solid black; border-radius: 50%; width: 60px; height: 60px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">_____</div>

2 marks

- (b) A number rounded to the **nearest ten** is **50**

Give an example of what the number could be.



1 mark

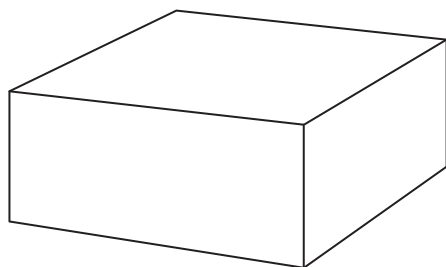
Give a **different** example of what the number could be.



1 mark



2. Look at this drawing of a cuboid.

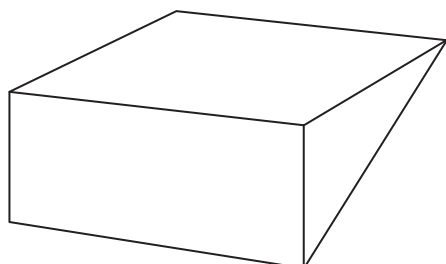


- (a) How many **rectangular faces** does the cuboid have?



1 mark

- (b) The cuboid is cut in half through its corners.
Here is the shape of one half.



How many **triangular faces** does this shape have?



1 mark

How many **rectangular faces** does this shape have?

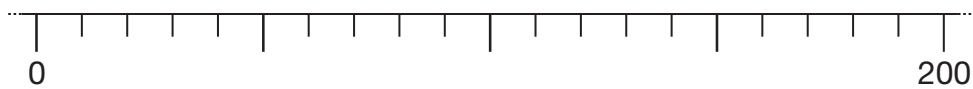
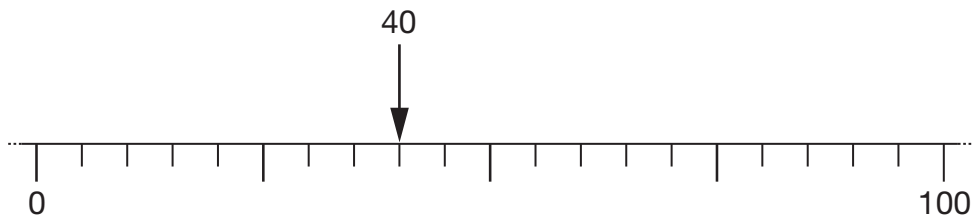


1 mark

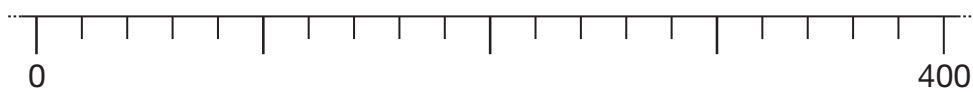
3. Here are three different number lines.

Show the position of **40** by drawing an arrow (\downarrow) on each one.

The first one is done for you.



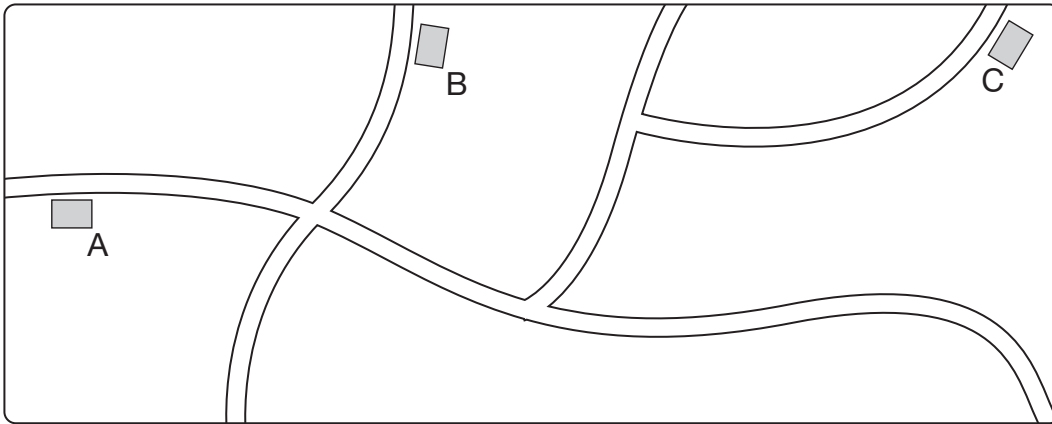
1 mark



1 mark



4. Look at the map.



Here are the directions to get from **house A to house B**.

Come out of house A and turn right.

Then take the first road on the left.

Then house B is on the right.

- (a) Complete the directions to get back from **house B to house A**.

Come out of house B and turn left

Then take the first road on the _____

Then house A is on the _____

1 mark

- (b) Andrew wants to know how to get from **house A to house C**.

Write directions for Andrew below.



2 marks

5. Write the missing numbers on these cheques.


The first one is done for you.


Pay <i>J. Baker</i>	Date: 30.04.08

Thirty-eight pounds and	£ 38 . 67

sixty-seven pence	
_____	H. Norris


Pay <i>T. Jones</i>	Date: 30.04.08


One hundred and two pounds and 	£

seventy pence	
_____	H. Norris

1 mark

Pay <i>B. Torres</i>	Date: 30.04.08

One hundred and twenty pounds and 	£

seven pence	
_____	H. Norris

1 mark



6. The table shows the opening times for a theme park.

	April 1st to October 31st	November 1st to March 31st
Monday to Friday	11 am to 7 pm	Closed
Saturday and Sunday	10 am to 8 pm	11 am to 4 pm

- (a) At what time does the theme park close on Saturdays in August?



_____ pm

_____ 1 mark

- (b) For how many months is the theme park open 7 days a week?



_____ months

_____ 1 mark

- (c) On a Saturday in January, Mina arrives at the theme park at 11 am.
She stays until closing time.

How long does she stay at the theme park?



_____ hours

_____ 1 mark

7. James says:

Adding two odd numbers always gives an odd number answer.

Give an example to show that James is **wrong**.



1 mark

8. (a) What number is 378 **more than** 1756?



1 mark

(b) What number is 378 **times as big as** 1756?



1 mark

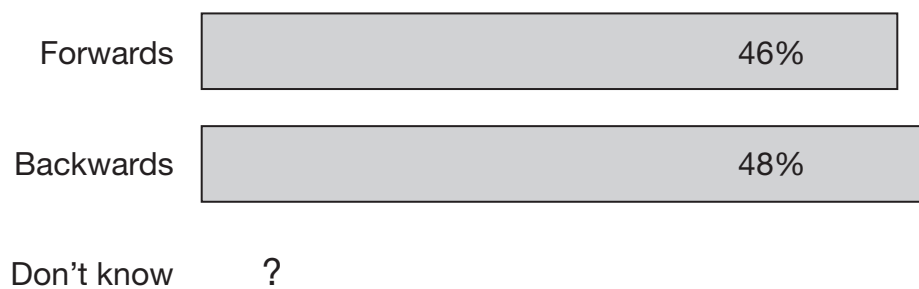


9. Here is a question from a survey.

In a time machine, would you like to go forwards or backwards in time?

People said 'Forwards', 'Backwards' or 'Don't know'.

Results:



The bar for 'Don't know' has not been drawn.

What percentage of people said 'Don't know'?



_____ %
_____ 2 marks

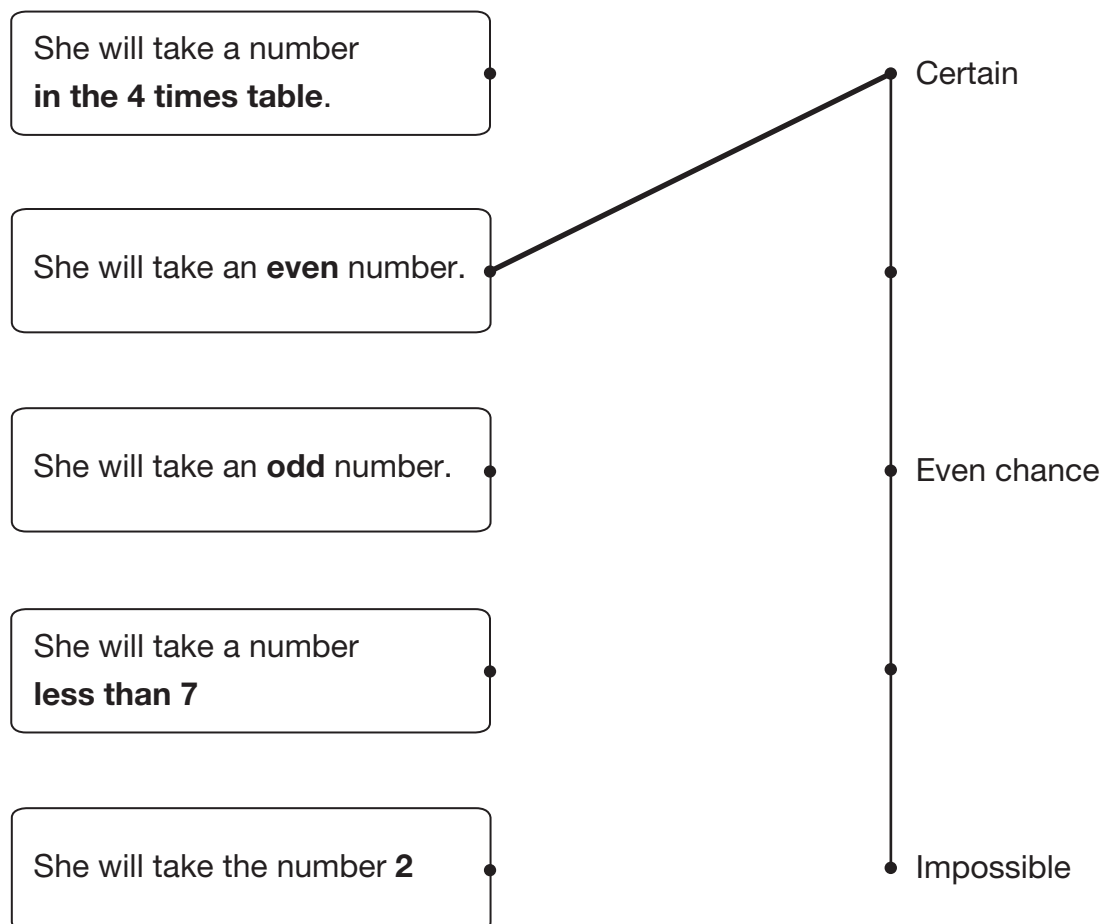
10. A pupil has these four number cards.



She is going to mix them up and take one card at random.

Match each statement to the correct position on the probability scale.

One is done for you.



2 marks



11. Some people use this rule to work out how many hours' sleep each night young children need.

Subtract the child's age in years **from 30**,
then **divide** the result by **2**

- (a) Sanjay is **8** years old.

Use the rule to work out how many hours' sleep he needs.



_____ hours

_____ 1 mark

- (b) Lisa is **6** years old.

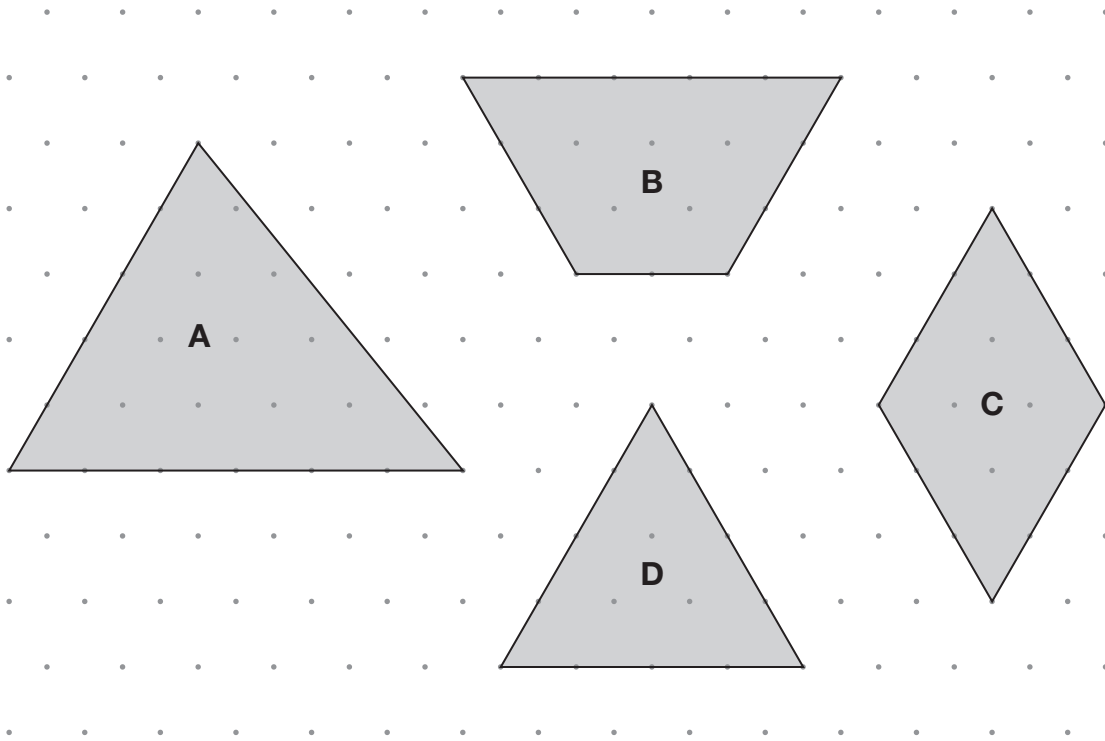
She wakes up every morning at **7 am**.

Use the rule to work out what time she needs to go to sleep.



_____ 2 marks

12. Look at the shaded shapes drawn on an isometric grid.



Write each of B, C and D in its correct place in the table below.



	No equal sides	Exactly 2 equal sides	More than 2 equal sides
Has 3 sides	A		
Has more than 3 sides			

 2 marks



13. Some people in a supermarket are shopping for food.

(a) **100g** of cheese costs **46p**.

Peter buys **250g** of the cheese.

How much does he pay?



1 mark

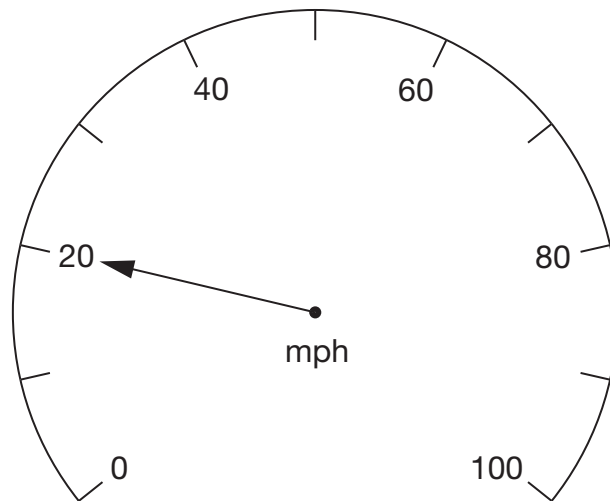
(b) Tins of beans cost **36p each**.

What is the largest number of these tins John can buy with **£2**?

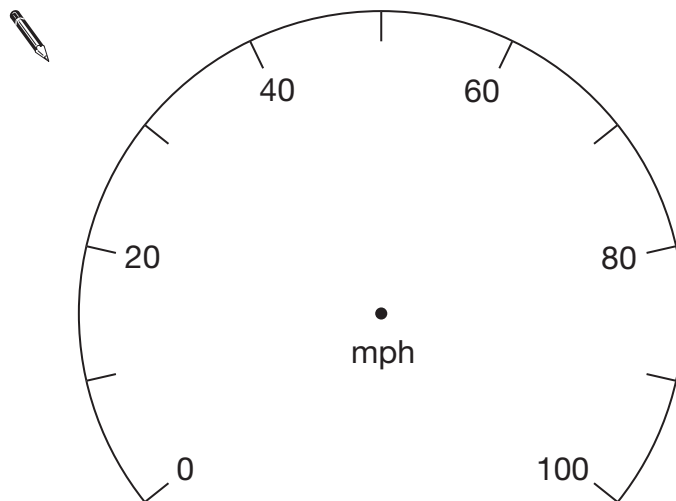


1 mark

14. The arrow on this dial shows a speed of **20mph**.



- (a) Draw an arrow on the dial below to show a speed of **65mph**.



1 mark

- (b) **160km/h** is about the same as **100mph**.

What speed in **km/h** is about the same as **25mph**?

 _____ km/h

1 mark



15. Sam asked pupils in his class:

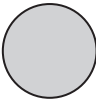

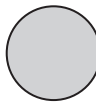
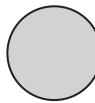
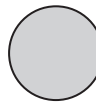
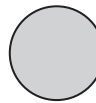
Do you like American football?

There were **30** pupils in his class.

The same number of pupils said 'Yes' as said 'No'.

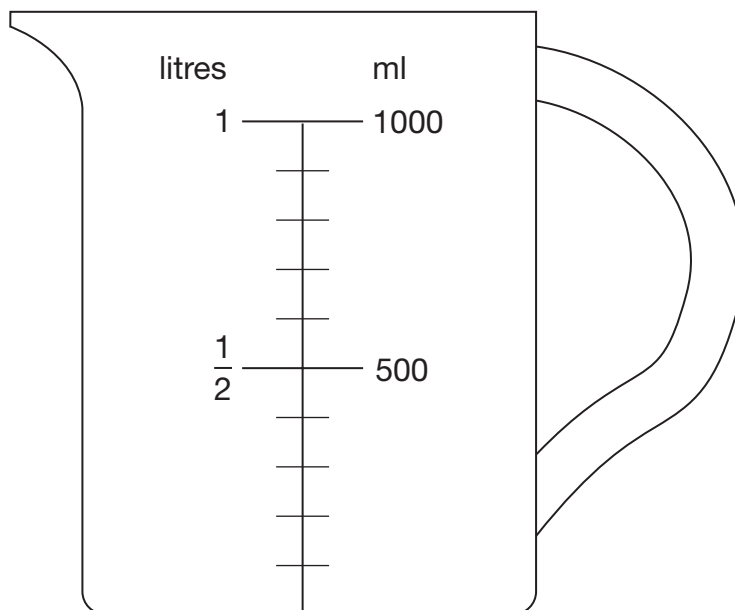
12 pupils said 'Don't know'.

Complete the key and the rows for Yes and No in Sam's pictogram.

	Key:  represents _____ people
 Yes	
No	
Don't know	   

2 marks

16. A jug measures in litres and in millilitres.



You can use the diagram to help you write the missing values below.

The first one is done for you.

$$\frac{1}{2} \text{ litre} = \underline{500} \text{ ml}$$



$$\frac{3}{4} \text{ litre} = \underline{\hspace{2cm}} \text{ ml}$$

1 mark



$$\frac{1}{10} \text{ litre} = \underline{\hspace{2cm}} \text{ ml}$$

1 mark

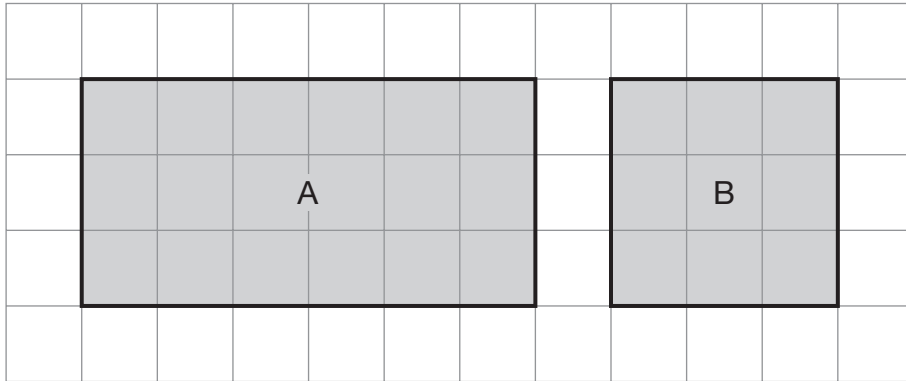


$$\underline{\hspace{2cm}} \text{ litre} = \underline{200} \text{ ml}$$

1 mark



17. Look at the shaded shapes drawn on a square grid.



- (a) Nick says:

The **area** of rectangle A is **double** the area of square B.

Is he correct?



Yes

No

Explain your answer.



1 mark

- (b) Alice says:

The **perimeter** of rectangle A is **double** the perimeter of square B.

Is she correct?



Yes

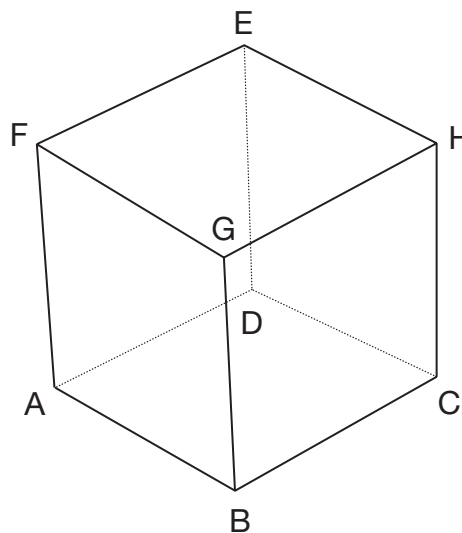
No

Explain your answer.



1 mark

18. Look at the diagram of Megan's cube.



Megan puts her finger on point A.

She can move her finger along **3 edges** to get from point **A** to point **H** without taking it off the cube.

Complete the table below to show **all 6 ways** she can do this.

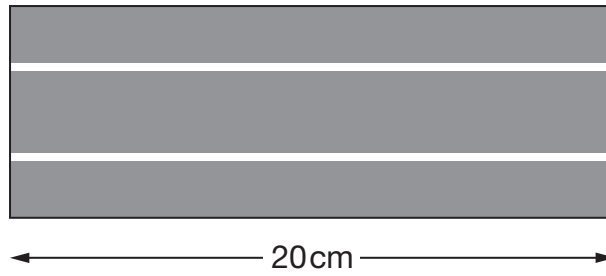
One way is done for you.

Ways of moving from A to H	
A → B → C → H	

2 marks



19. (a) A straight piece of model car track is 20cm in length.

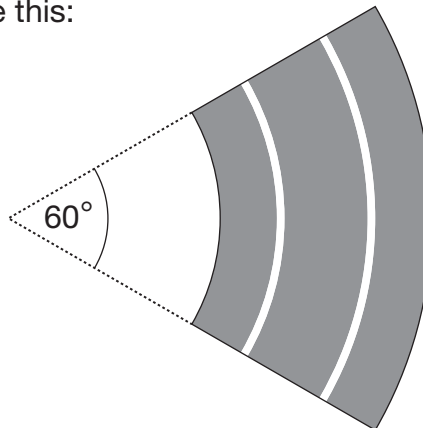


How many of these straight pieces are needed to make a **1 metre** track?



1 mark

- (b) A curved piece of track looks like this:



How many of these curved pieces are needed to make a **complete circle** of track?



1 mark

20. Match each statement to the correct expression.

The first one is done for you.



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

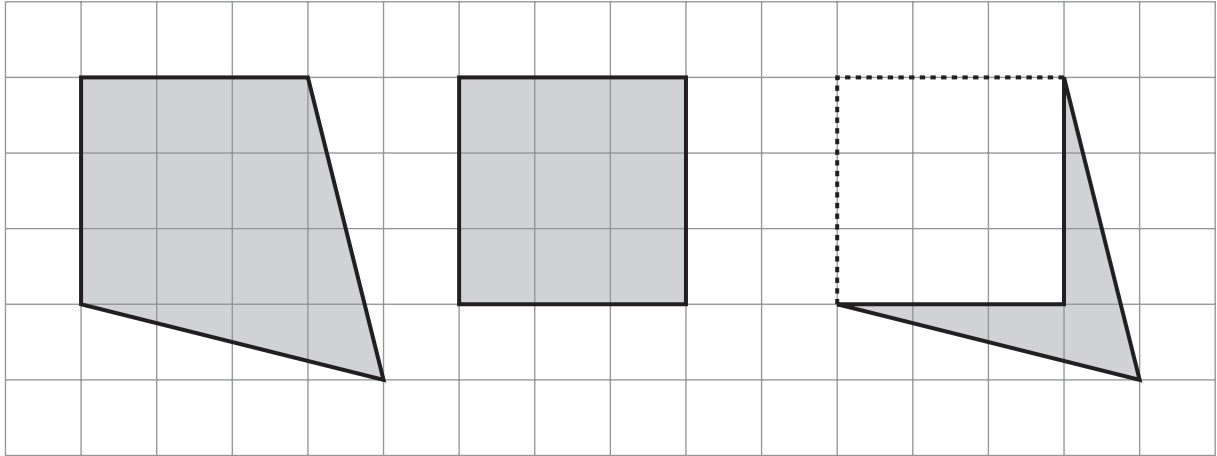
2 marks




21. Look at the shapes drawn on the centimetre square grid.

For each one, work out the **area** that is **shaded**.

The first one is done for you.



 Area = 12 cm²

Area = _____ cm²

Area = _____ cm²

_____ 1 mark

22. (a) Look at the equation.

$$n + 3 = 12$$

Use it to work out the value of $n - 3$



_____ 1 mark

(b) Now look at this equation.

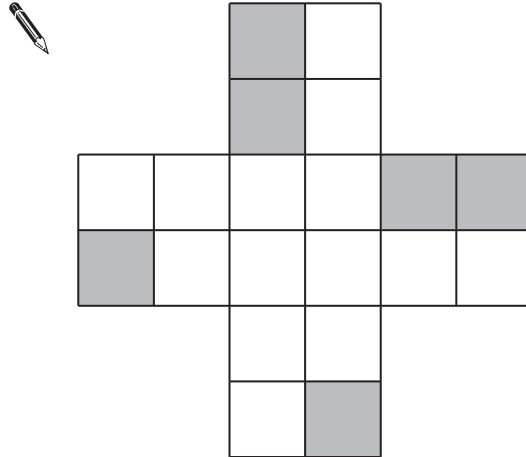
$$n + 3 = 7$$

Use it to work out the value of $n - 6$



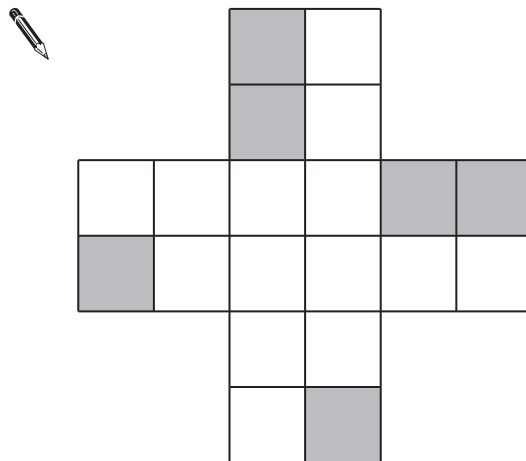
_____ 1 mark

23. (a) Shade **two** more squares on the shape below so that it has **rotation symmetry** of order **4**



 1 mark

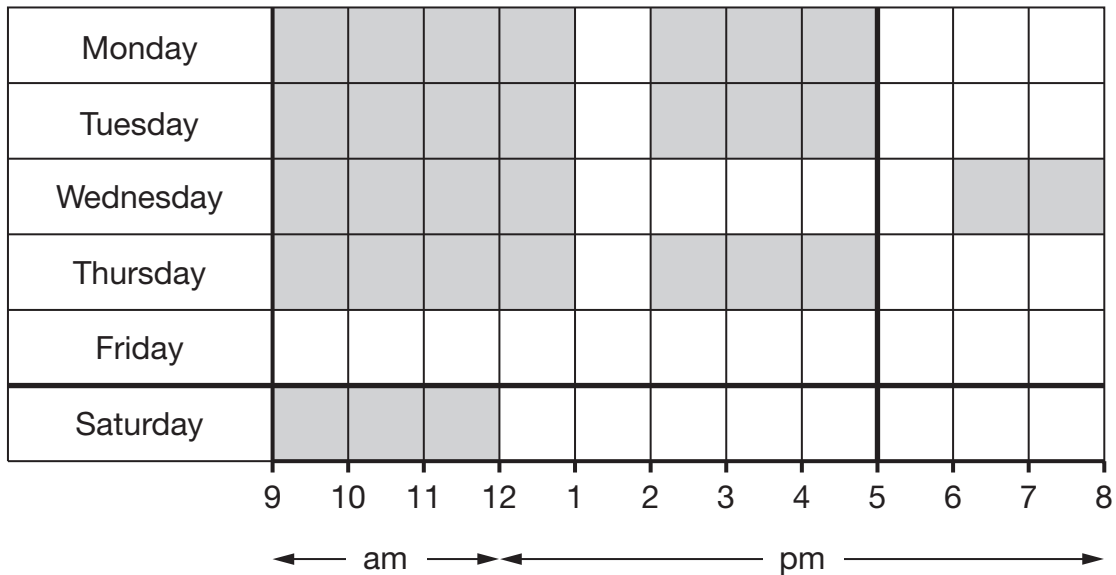
- (b) Now shade **four** more squares on the shape below so that it has **rotation symmetry** of order **2**



 1 mark


24. Kim works in a shop.

The shaded squares on the diagram below show the hours she worked in one week.



The table shows her pay for each hour worked.

	Pay for each hour worked
Monday to Friday, 9am to 5pm	£6.35
Monday to Friday, after 5pm	£7.50
Saturday	£7.50

26. A famous mathematician claimed that:

Every **even** number greater than 4 can be written as the **sum of a pair of prime** numbers.

For example: 8 can be written as the sum of 3 and 5, and 3 and 5 are both prime numbers.

- (a) Write a pair of **prime** numbers that **sum to 16**



_____ and _____

_____ 1 mark

Now write a **different** pair of prime numbers that sum to 16



_____ and _____

_____ 1 mark

- (b) Now choose an **even** number that is **greater than 16**, then write a pair of **prime** numbers that sum to your even number.

Complete the sentence below.



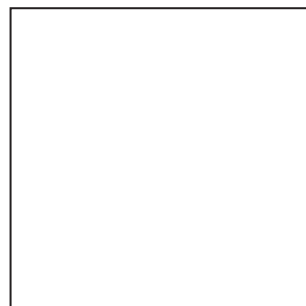
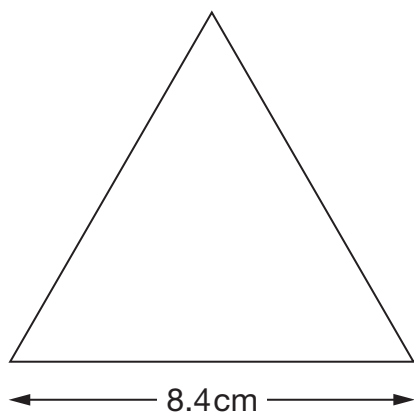
The even number _____ can be written as

the sum of the prime numbers _____ and _____

_____ 1 mark

27. The diagrams show an **equilateral triangle** and a **square**.

The shapes are not drawn accurately.



The side length of the equilateral triangle is 8.4 cm.

The **perimeter** of the square is the **same** as the perimeter of the equilateral triangle.

Work out the **side length** of the square.



cm

2 marks



END OF TEST