Ma

KEY STAGE
3

TIER
3–5

2007

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.

For marker's use only

TOTAL MARKS	
Borderline check	

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. Each rule below makes a sequence.

Use the rule to write the **next two numbers** for each sequence.

Rule: **Add 3** to the last number

2 5 8 _____ _____

1 mark

Rule: **Double** the last number then **add 1**

2 5 11 _____ _____

1 mark

Rule: **Multiply** the last number **by 3** then **subtract 1**

2 5 14 _____ _____

1 mark

2. The table shows when Julie has to hand in homework for different subjects.

	Mon	Tue	Wed	Thu	Fri
Maths	✓			✓	
English		✓		✓	
Science			✓		
French	✓		✓		
Technology				✓	
Art					✓
Music		✓			

(a) On what days does Julie have to hand in **French** homework?



_____ and _____

1 mark

(b) On **Thursdays**, Julie has to hand in homework for three subjects.

What subjects are these?



_____ , _____ and _____

1 mark

(c) On **Tuesday**, the **Art** teacher gives Julie her homework.

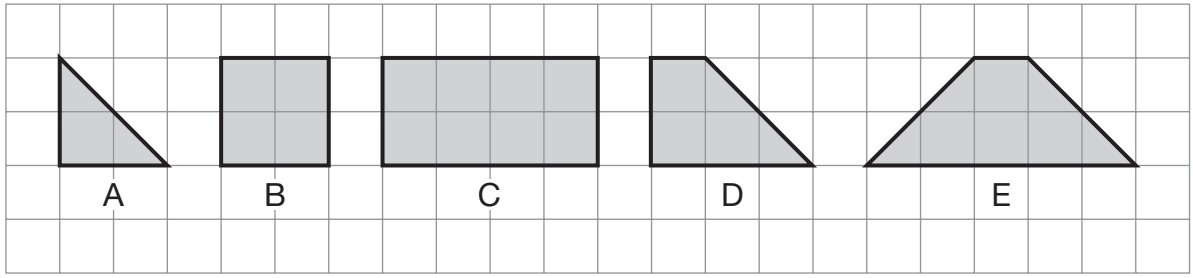
How many nights are there before she has to hand in her Art homework?



_____

1 mark

3. Look at these five shapes.



Square grid

(a) Complete the sentences below.

The first one is done for you.

Shape A is the only shape with **three sides**.

Shape _____ is the only shape with **no right angles**. _____ 1 mark

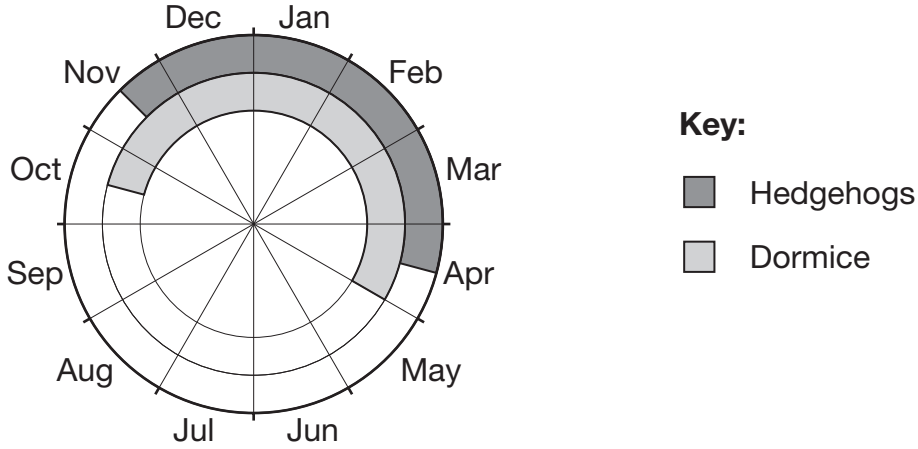
Shape _____ is the only shape with **no lines of symmetry**. _____ 1 mark

(b) Now complete this sentence.

Shape **B** is the only shape with **four** _____ _____ 1 mark

4. Hedgehogs and dormice are small animals that sleep through the winter.

The **shaded** parts of the chart show **when they sleep**.



Use the chart to answer these questions.

(a) Hedgehogs go to sleep in the middle of November.

For **how many months** do they sleep?

_____ months

1 mark

(b) Look at this statement.

> Dormice sleep for **more than half of the year**.

Is the statement true?

☐ Yes ☐ No

Explain your answer.

1 mark

5. Here are the costs of tickets for a concert.

Concert tickets	
Adults:	£24.50 each
Children:	£16.45 each

(a) **Two adults** go to the concert with **three children**.

Altogether, how much do their tickets cost?

£

1 mark

(b) **Three adults** go to the concert with some children.

Altogether, their tickets cost **£155.75**

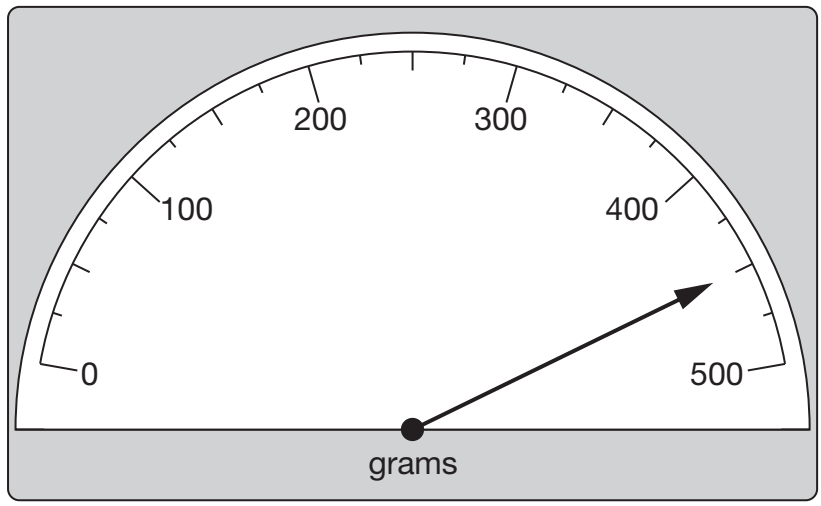
How many children went to the concert with the three adults?

2 marks

6. Anna is making a cake.

(a) The scale shows how much sugar she uses.

How much sugar does Anna use?

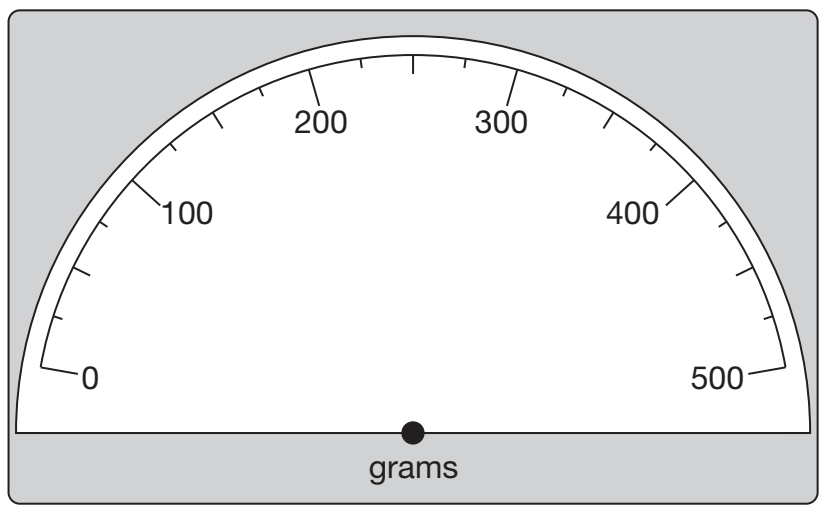


_____ g

1 mark

(b) Anna uses **275 g** of raisins.

Draw the arrow on the scale to show 275 g.



1 mark

(c) Anna put the cake in the oven at **11 am**.

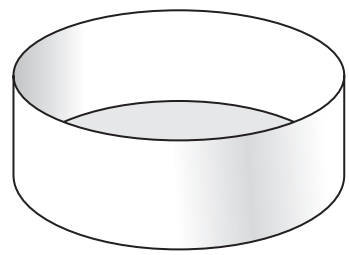
She took the cake out of the oven after **3 hours**.

At what time did she take the cake out of the oven?



1 mark

(d) Look at this diagram of the cake tin.



Tick (✓) the **correct name** for the shape of the tin.



Cube Cuboid Cylinder

Pyramid Cone

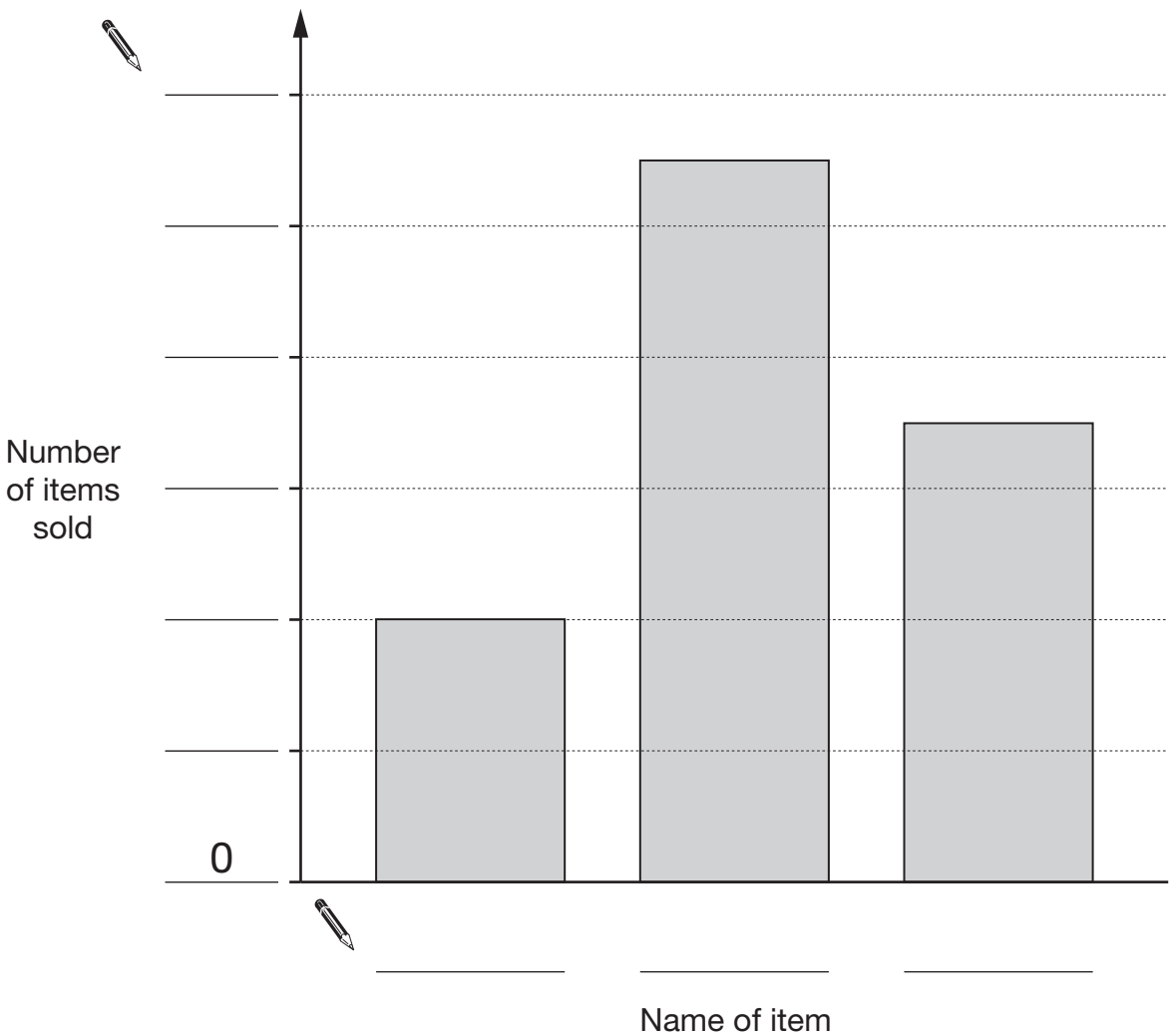
1 mark

7. The table shows some information about items sold in a school shop.

Name of item	Number of items sold
Glue	8
Pens	22
Rulers	14

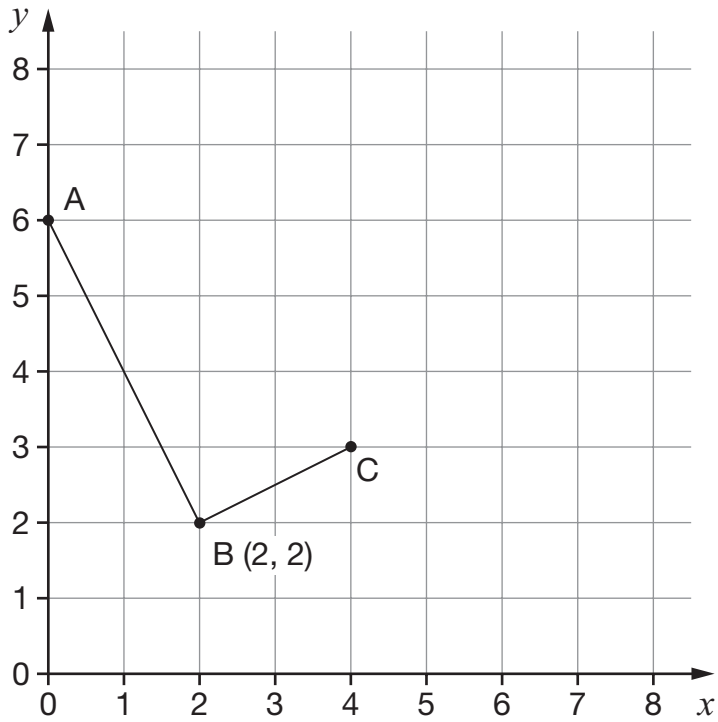
The bar chart below shows the same information.

Write the missing information in the spaces around the chart.



2 marks

8. Look at the graph.



(a) Write down the coordinates of points A and C.

A is (_____ , _____)

1 mark

C is (_____ , _____)

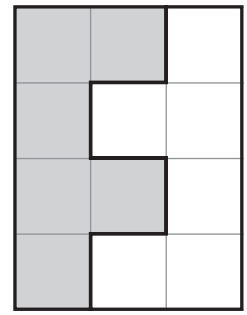
1 mark

(b) Point D can be marked so that ABCD is a **rectangle**.

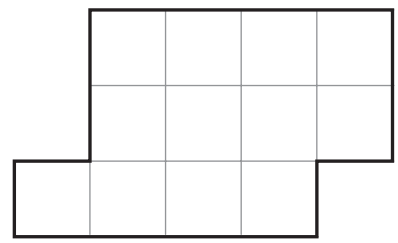
Mark point D accurately on the graph.

1 mark

9. (a) The diagram shows how two congruent 'F-tiles' fit together to make a rectangle.



Show how the two congruent 'F-tiles' can fit together to make this shape.



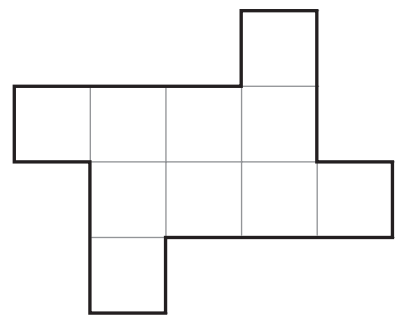
1 mark

(b) Two other tiles fit together to make a different shape.

The two tiles are congruent but they are **not 'F-tiles'**.

What shape could the tiles be?

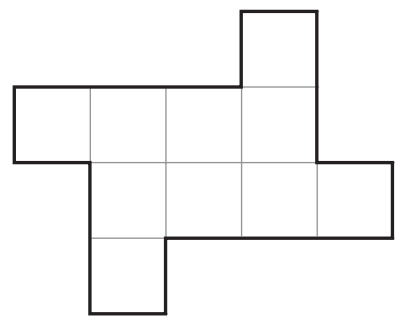
Show them on the diagram.



1 mark

What **other** shape could the tiles be?

Show them on the diagram.



1 mark

10. These are the names of the twelve people who work for a company.

Ali	Claire	Kiki	Suki
Brian	Claire	Lucy	Tom
Claire	James	Ryan	Tom

(a) What name is the **mode**?



_____

1 mark

(b) One person leaves the company. A different person joins the company.

Now the name that is the **mode** is **Tom**.

Write the missing names in the sentences below.



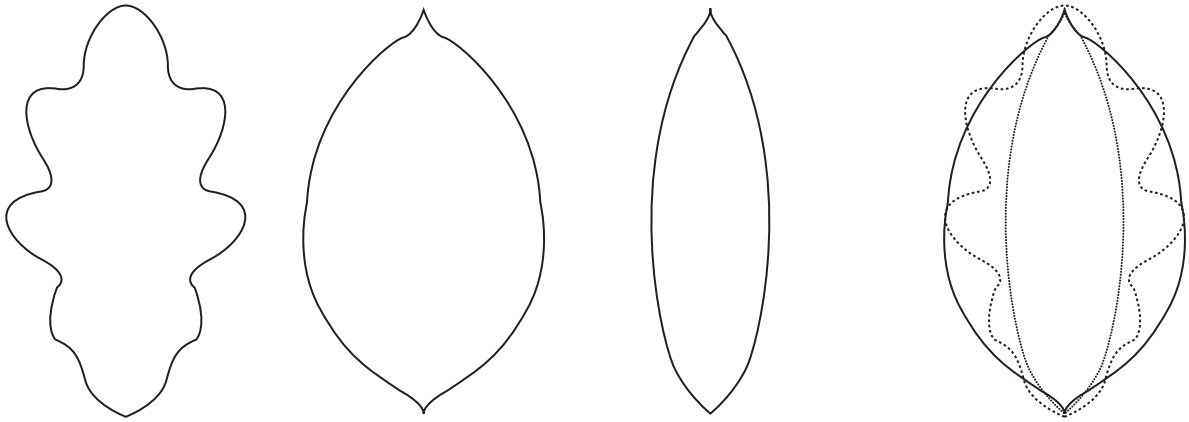
The name of the person who **leaves** is _____

The name of the person who **joins** is _____

1 mark

11. The scale drawing shows three leaves from different trees.

The drawing on the right shows the leaves drawn on top of each other.



Oak Beech Willow

(a) Compare the **areas** of the leaves.

Write the leaves in order, **smallest area first**.



_____ _____ _____ _____ 1 mark

smallest area

largest area

(b) Now compare the **perimeters** of the leaves.

Write the leaves in order, **smallest perimeter first**.



_____ _____ _____ _____ 1 mark

smallest perimeter

largest perimeter

12. Here is information about some bags of marbles.

> Altogether, there are 10 bags.
>
> Each bag contains 12 marbles.
>
> Each marble weighs 7 grams.

Use the information to match each question with the correct calculation.

The first one is done for you.

Question	Calculation
How many **bags** are there altogether?	10
How many **marbles** are there altogether?	10 × 7
How much does **each** bag of marbles weigh?	10 × 12
How much do **all 10** bags of marbles weigh altogether?	12 × 7
	10 × 12 × 7
	10 + 12 + 7

2 marks

13. Look at this equation.

$$4 + a = b$$

Write a pair of numbers for a and b to make the equation true.



$a =$ _____ $b =$ _____

1 mark

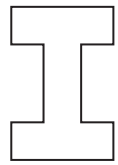
Now write a **different** pair of numbers for a and b to make the equation true.



$a =$ _____ $b =$ _____

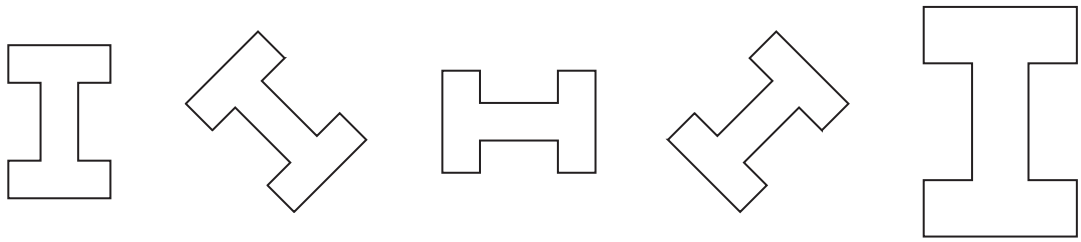
1 mark

14. Here is a shape.



I turn the shape through **45° clockwise**.

Tick (✓) the diagram that shows the shape **after** the turn.



1 mark

15. Leena buys balloons, hats and masks for a party.

Write the missing numbers in the table.

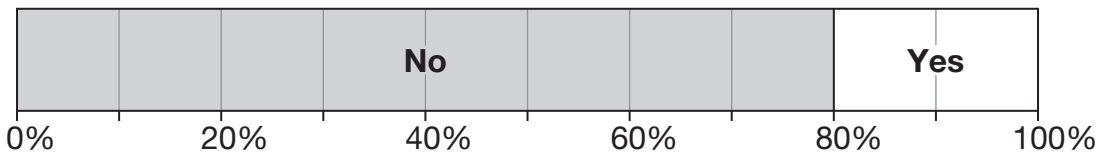
	Cost of each (£)	Number bought	Total cost (£)
Packets of balloons	4.95	5	_____
Hats	3.20	_____	41.60
Masks	_____	10	19.50
			Total: _____

2 marks

16. Carlos and Mary each did a survey.

(a) Carlos asked people: 'Have you ever been to North America?'

The percentage bar chart shows his results.



40 people said **No**.

How many people said **Yes**?

_____ people

1 mark

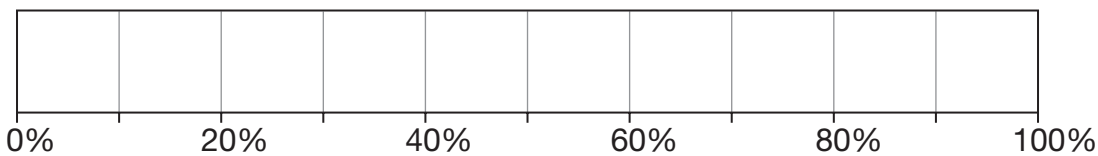
(b) Mary asked **10 people**: 'Would you like to go to South America?'

Results: 5 of the 10 people said 'No'.

4 of the 10 people said 'Don't know'.

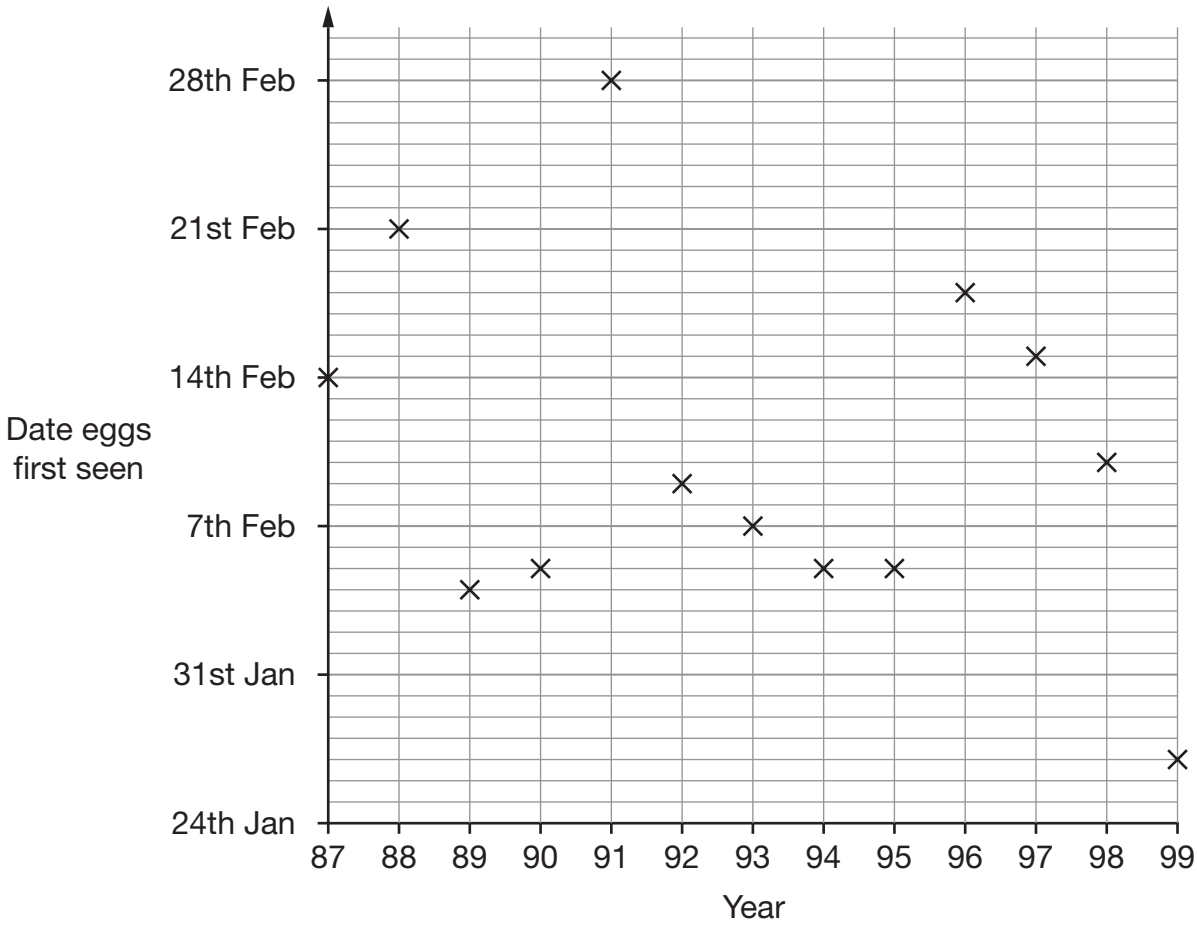
1 of the 10 people said 'Yes'.

Complete the percentage bar chart to show these results.



2 marks

17. The graph shows the date each year that frogs' eggs were first seen.



(a) On what date in **1997** were frogs' eggs first seen?

_____

1 mark

(b) At the beginning of each year, the warmer the weather, the earlier frogs' eggs are first seen.

What can you say about the weather at the beginning of **1991**?

1 mark

18. (a) Here is an expression.

$2a + 3 + 2a$

Which expression below shows it written as simply as possible?

Put a ring round the correct one.



$7a$ $\quad$ $7 + a$ $\quad$ $2a + 5$

$4a + 3$ $\quad$ $4(a + 3)$

1 mark

(b) Here is a different expression.

$3b + 4 + 5b - 1$

Write this expression as simply as possible.



1 mark

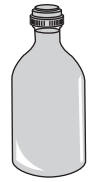
19. Here are two containers and the amounts they hold.

A



750 millilitres

B



0.5 litre

Not drawn accurately

Which container holds the greater amount?

☐ A ☐ B

How much **more** does it hold?

Give your answer in millilitres.

_____ millilitres

1 mark

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20. (a) A triangle has **three equal sides**.

Write the sizes of the **angles** in this triangle.

_____ ° , _____ ° , _____ °

1 mark

(b) A **right-angled triangle** has **two equal sides**.

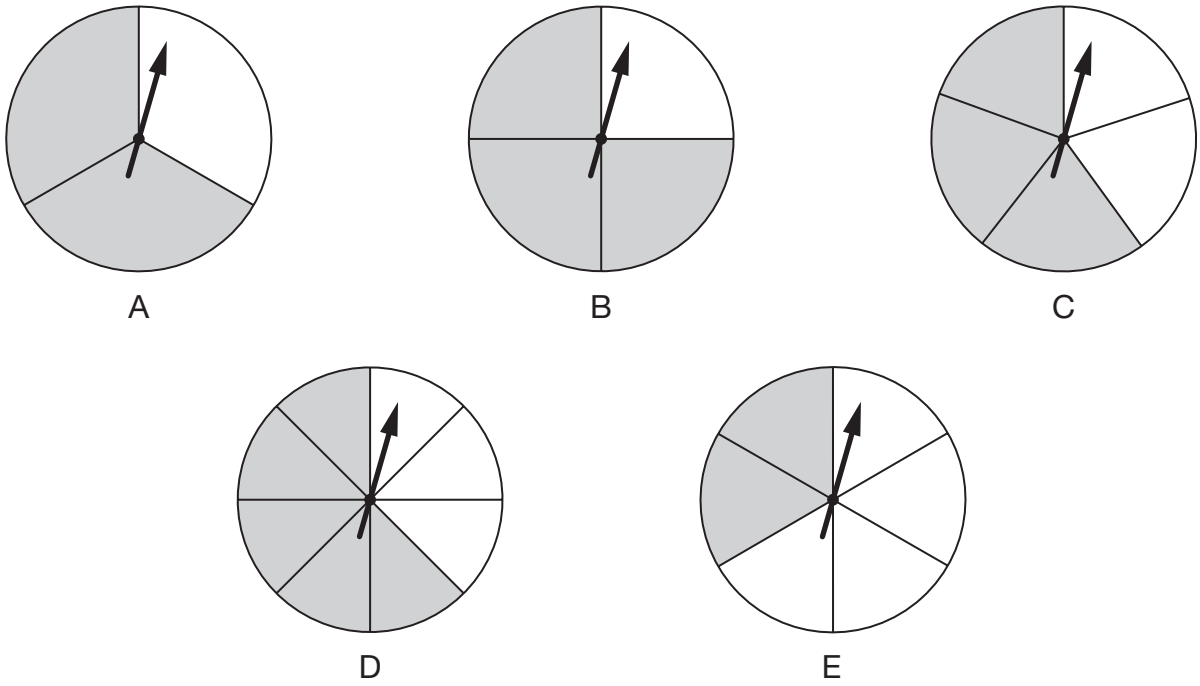
Write the sizes of the **angles** in this triangle.

_____ ° , _____ ° , _____ °

1 mark

21. The diagram shows five fair spinners with grey and white sectors.

Each spinner is divided into equal sectors.



I am going to spin all the pointers.

(a) For one of the spinners, the probability of spinning **grey** is $\frac{3}{4}$

Which spinner is this? Write its letter.

_____

1 mark

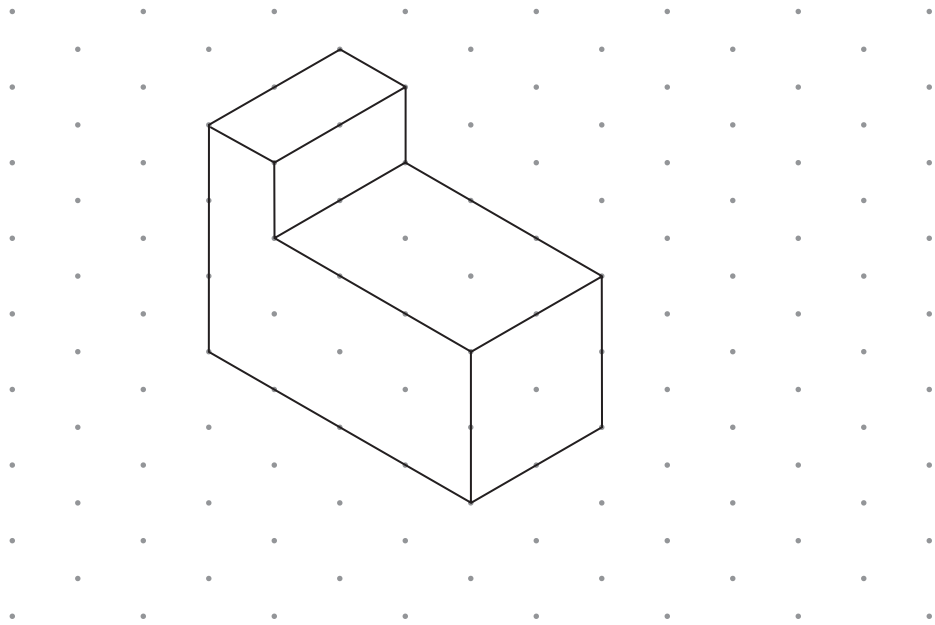
(b) For two of the spinners, the probability of spinning **grey** is **more than 60%** but **less than 70%**

Which two spinners are these? Write their letters.

_____ and _____

1 mark

22. (a) Look at the drawing of a prism on the grid.



Isometric grid

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

_____

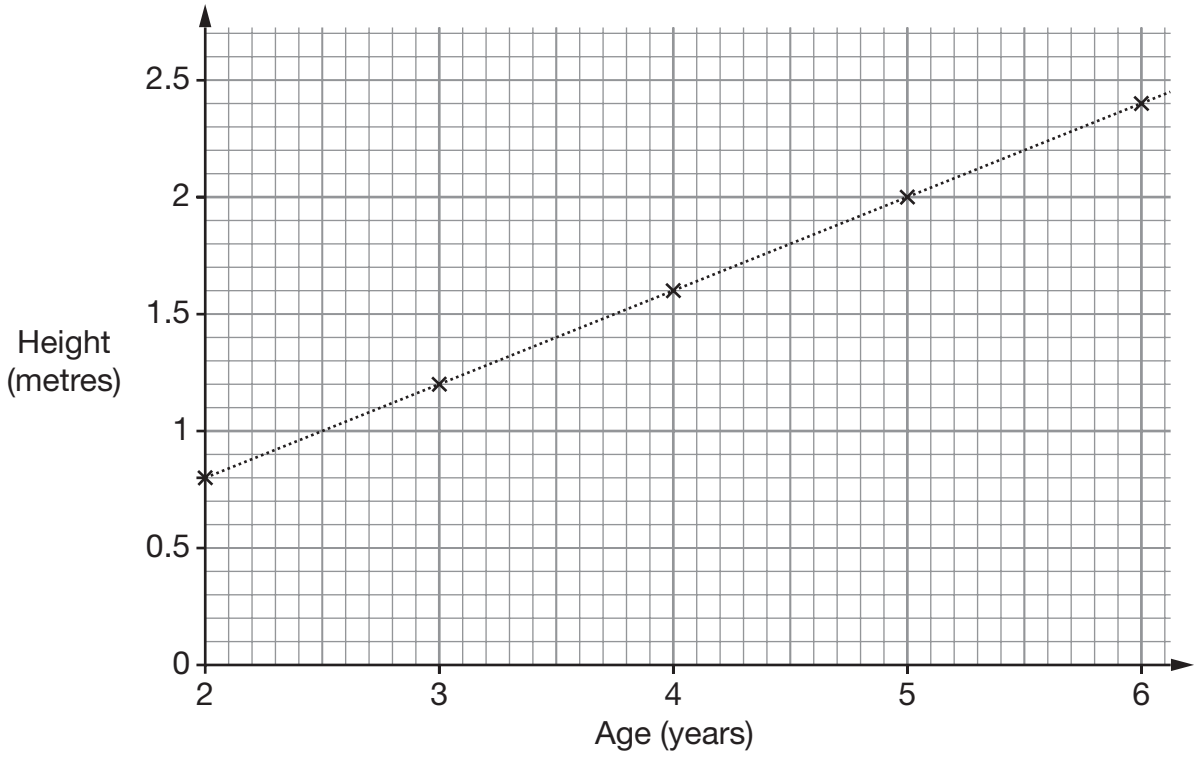
1 mark

(b) Use the grid below to draw a solid with **6 faces**.

Isometric grid

1 mark

23. The graph shows the average heights of fir trees of different ages.



The table shows the cost of fir trees of different heights.

	120 cm to 159 cm	160 cm to 199 cm	200 cm to 239 cm
Cost	£20.00	£25.00	£30.00

(a) One of these fir trees is **$5\frac{1}{2}$ years old**.

How much is it likely to cost?

£ _____

1 mark

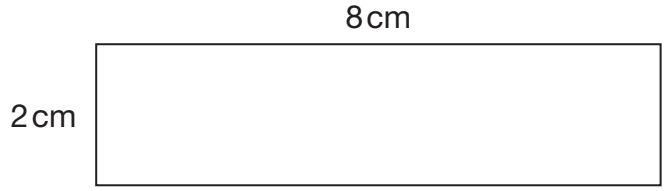
(b) One of these fir trees costs **£25.00**

How old is the tree likely to be?

Between _____ and _____ years old

1 mark

24. Here is a rectangle.



Not drawn accurately

(a) A **square** has the **same area** as this rectangle.

What is the **side length** of this square?

_____ cm

1 mark

(b) A **different square** has the **same perimeter** as this rectangle.

What is the **side length** of this square?

_____ cm

1 mark

25. Kate buys **24 cans** of lemonade.

She buys the cans in **packs of 4**

Each pack costs **£1.20**



Pack of 4
Cost £1.20

Steve buys **24 cans** of lemonade.

He buys the cans in **packs of 6**

Each pack costs **£1.60**



Pack of 6
Cost £1.60

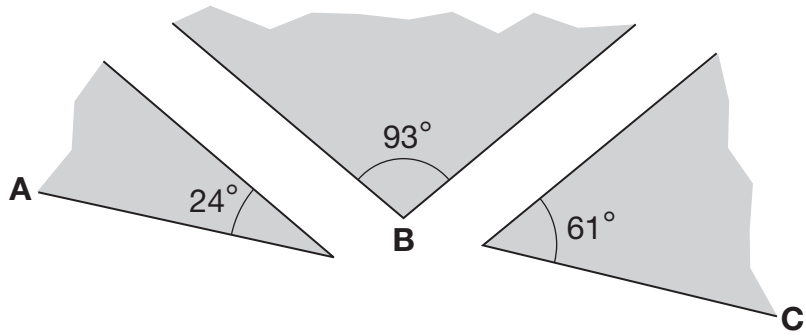
Kate pays more for her 24 cans than Steve pays for his 24 cans.

How much more?

_____ p

2 marks

26. Three shapes fit together at point B.



Not drawn accurately

Will ABC make a straight line?

☐ Yes ☐ No

Explain your answer.

1 mark

27. Solve these equations.

$32x + 53 = 501$

$x =$ _____

1 mark

$375 = 37 + 26y$

$y =$ _____

1 mark

END OF TEST

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QCA/06/2780 (Pupil pack)
QCA/06/2778 (Mark scheme pack)