Ma

KEY STAGE 3

TIERS 3–5

2006

Mathematics test

Paper 2

Calculator allowed

Please read this page, but do not open your booklet until your teacher tells you to start. Write your name and the name of your school in the spaces below.

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	

QCA/06/1925

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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.

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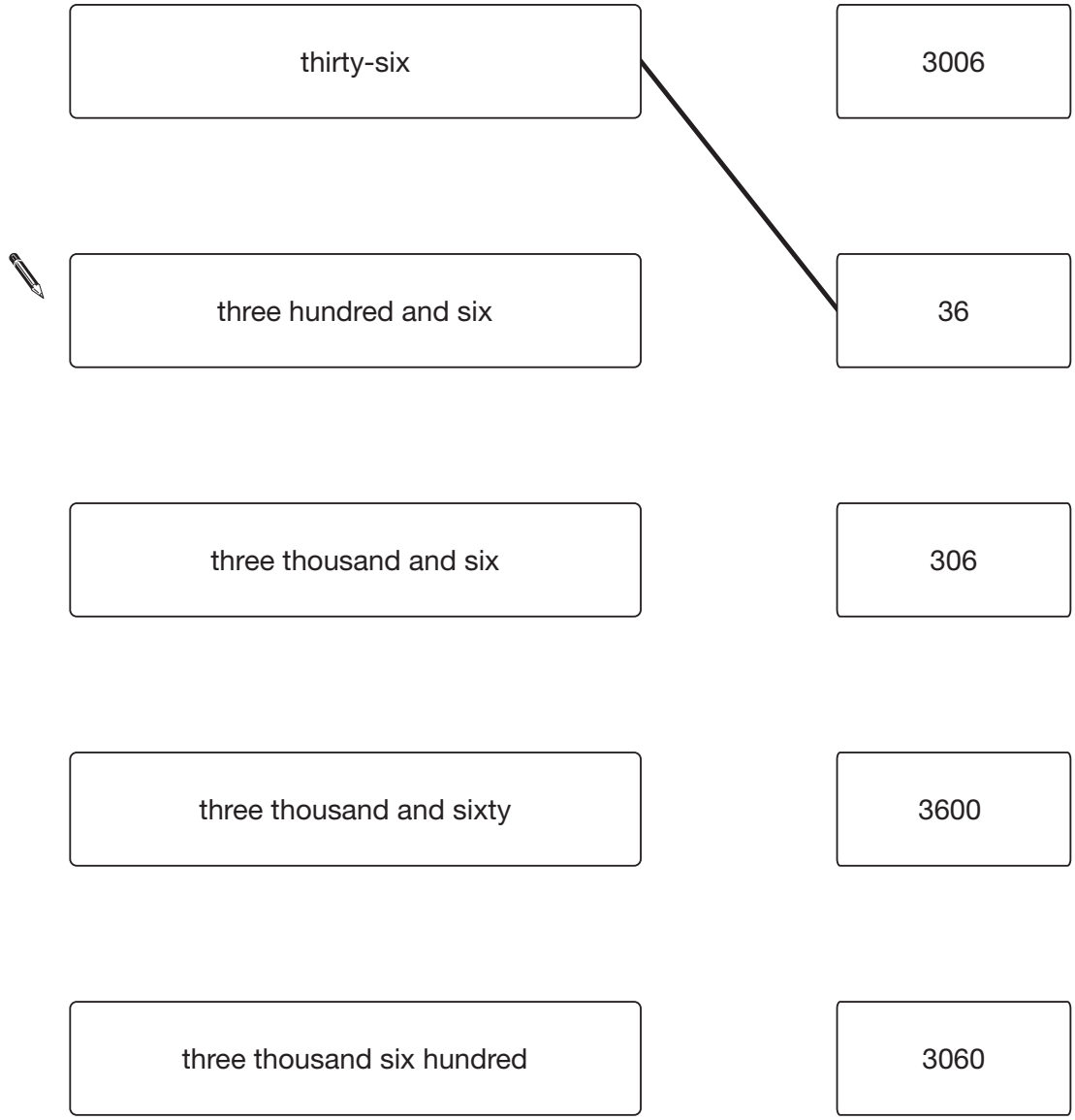
1. Draw lines to match the words to the correct numbers.

The first one is done for you.



2 marks

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2. There are 12 pupils in a group.

The table on the opposite page gives information about them.

Use the table to answer these questions.

(a) How many **girls** are in this group?

_____ 1 mark

(b) Whose birthday is **one day after** Alex Alcroft's birthday?

_____ 1 mark

(c) Who is the **oldest boy** in the group?

_____ 1 mark

(d) A new pupil, Sue Li, joins the group.

She was born exactly **1 month after** Laura Miller.

What is Sue's date of birth?

_____ 1 mark

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First name	Last name	Male or Female?	Date of birth
Alex	Alcroft	M	20.11.92
Helen	Brooks	F	10.01.93
Huw	Davies	M	21.11.92
Ben	Howard	M	24.06.93
Laura	Miller	F	07.12.92
Amy	Pound	F	08.06.93
Surjit	Sandhu	F	03.01.93
Jade	Smith	F	04.09.92
Mike	Smith	M	26.01.93
Leroy	Taylor	M	06.10.92
Claire	White	F	23.09.92
Louise	Wilson	F	26.02.93

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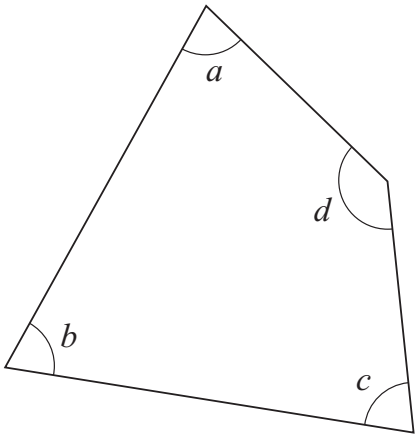
3. (a) Look at this quadrilateral.

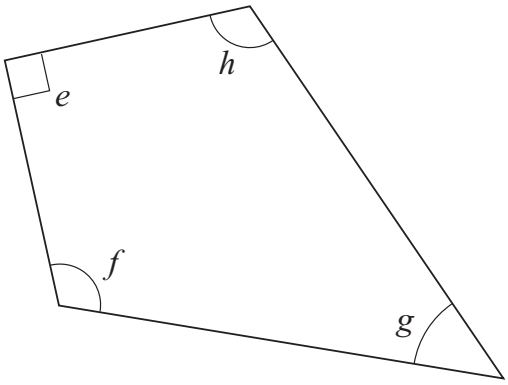


Which **angle** is **biggest**? Tick (✓) the correct box below.

☐ Angle a ☐ Angle b ☐ Angle c ☐ Angle d

1 mark

(b) Now look at this quadrilateral.



Angle e is marked with straight lines.

What does this tell you about the angle?

1 mark

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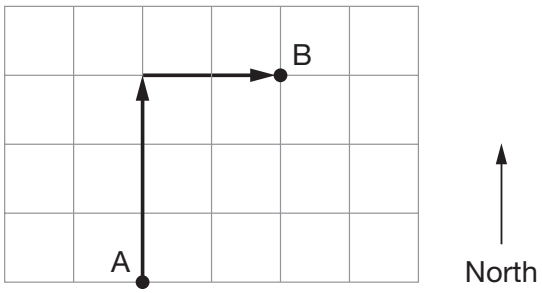
4. To move **from A to B** on the square grid:

move **North 3**

then **East 2**

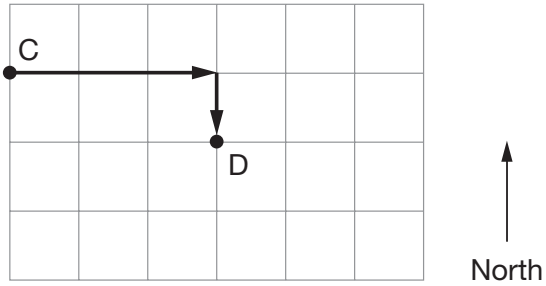


(a) Write the missing direction.

To move **from C to D** on the square grid:

move **East 3**

then _____



1 mark

(b) Write the missing directions.

To move **around the four sides of a square** on the square grid:

move **West 1**

then _____

then _____

then _____

1 mark

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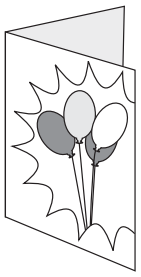
5. A shop sells birthday cards.

Each card has a code that shows the price.



Code	Price of card
A	95p
B	£1.25
C	£1.65
D	£1.95
E	£2.35

(a) Karen pays for two cards.

One card has code **A** on it.

The other has code **C**.

Altogether, how much does Karen pay?

£ _____

1 mark

(b) Tariq pays for two cards.

Both cards have code **D** on them.

Tariq pays with a **£10 note**.

How much **change** should he get?

£ _____

1 mark

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(c) Greg pays for two cards.

Altogether he pays **£3.60**

What could the **codes** on Greg's cards be?

There are two different answers. Write them both.

The codes could be _____ and _____, or _____

1 mark

the codes could be _____ and _____

1 mark

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6. Five people played each other at tennis.

The table shows who **won** each game.

For example, when Bob played Ann, Bob won.

	Ann				
Ann	✗	Bob			
Bob	Bob	✗	Carl		
Carl	Ann	Carl	✗	Dan	
Dan	Ann	Dan	Carl	✗	Ed
Ed	Ann	Bob	Carl	Dan	✗

(a) **Ann** played four games.

How many games did she **win**?

_____ 1 mark

(b) Write the name of the person who **lost all** their games.

_____ 1 mark

(c) Explain why there is a cross (✗) in some of the boxes.

1 mark

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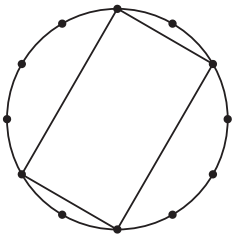
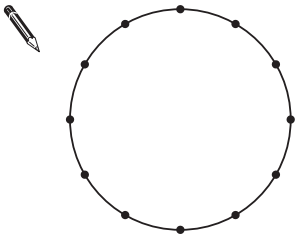
7. There are twelve points marked around this circle. The points are equally spaced.

You can join **4 points** to make a **rectangle**.

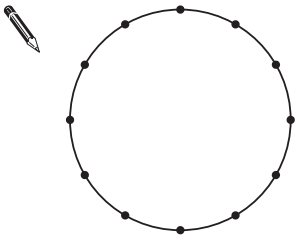


(a) Join **4 points** to make a **square**.



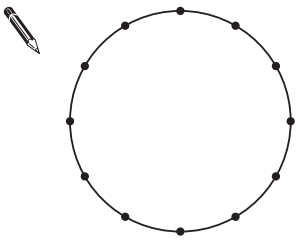
1 mark

(b) Join **3 points** to make an **equilateral triangle**.



1 mark

(c) Join a **different** set of **3 points** to make an **isosceles triangle**.



1 mark

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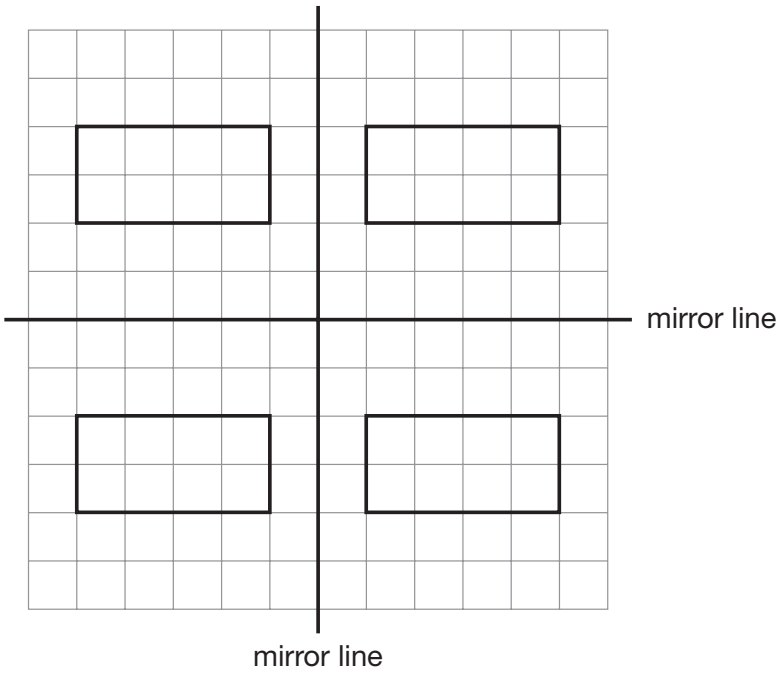
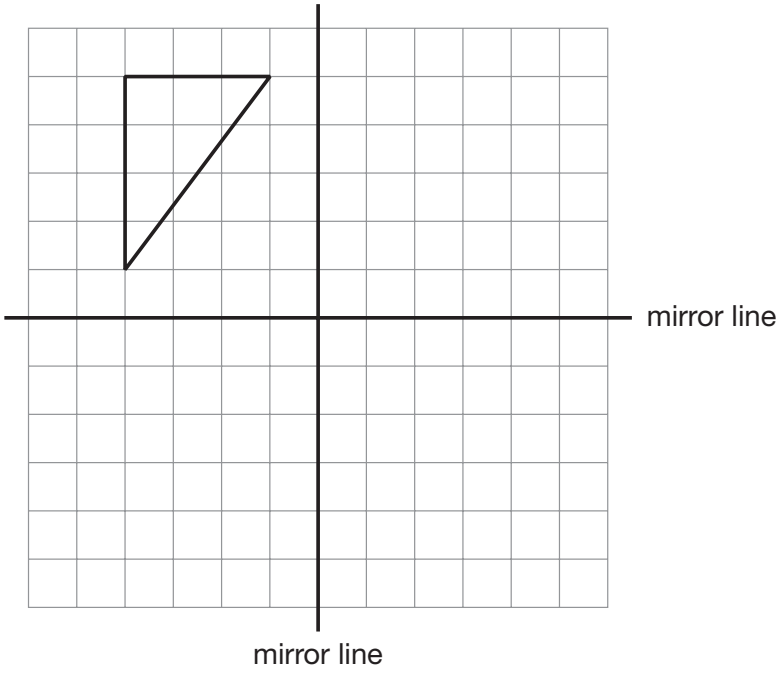
8. The square grid shows a rectangle reflected in **two mirror lines**.



On the square grid below, show the **triangle** reflected in the two mirror lines.



2 marks

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9. (a) These rules show how to get from one number to the next in these sequences.

Use the rules to write the next **two** numbers in each sequence.

Rule: **Add 8**				
	4	12	_____	_____

1 mark

Rule: **Multiply by 3**				
	4	12	_____	_____

1 mark

Rule: **Divide by 4 then add 11**				
	4	12	_____	_____

1 mark

(b) A sequence of numbers starts like this:

30 22 18

Could the rule be **Subtract 8**?

☐ Yes ☐ No

Explain your answer.

1 mark

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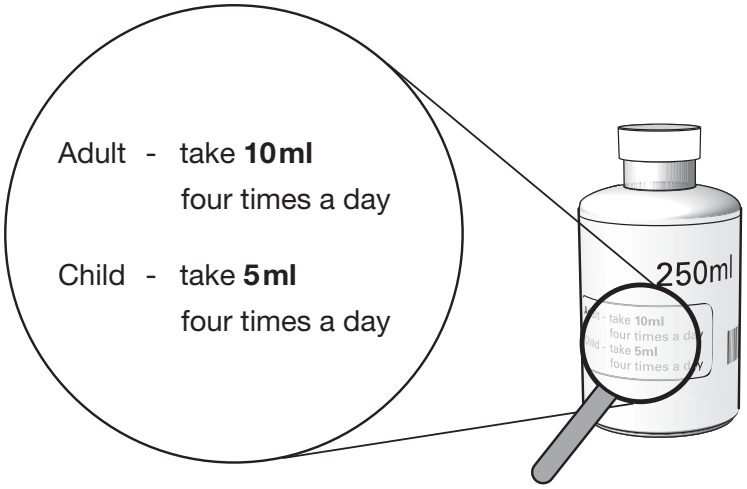
10. A bottle contains **250 ml** of cough mixture.



One adult and **one child** need to take cough mixture **4 times a day** every day for **5 days**.

Will there be enough cough mixture in the bottle?

Explain your answer.

2 marks

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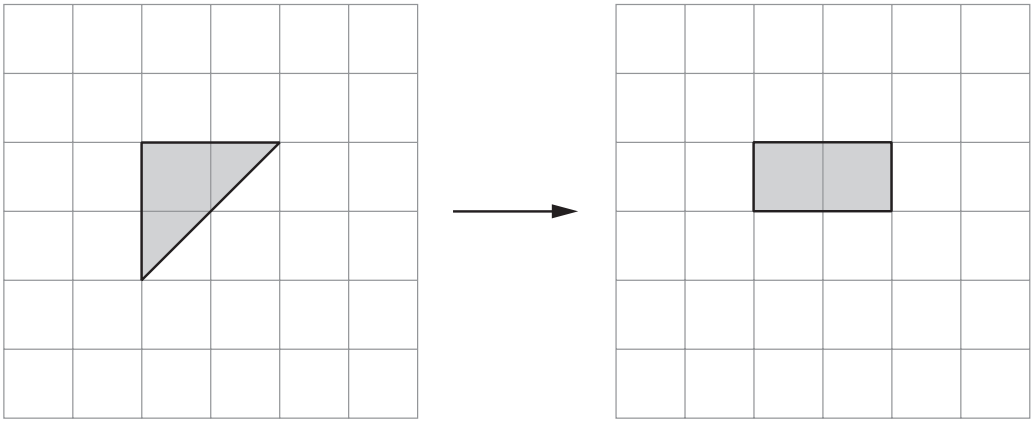
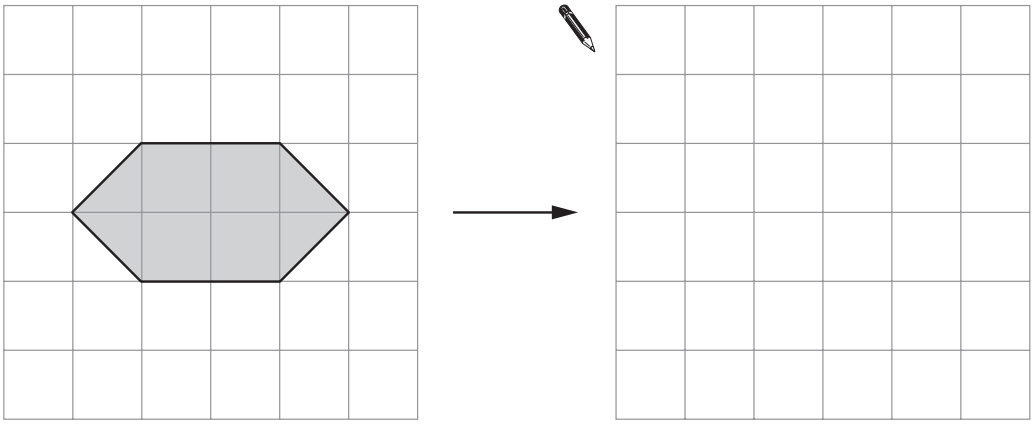
11. The grids in this question are centimetre square grids.

For each shape on the left, draw a **rectangle** that has the **same area**.

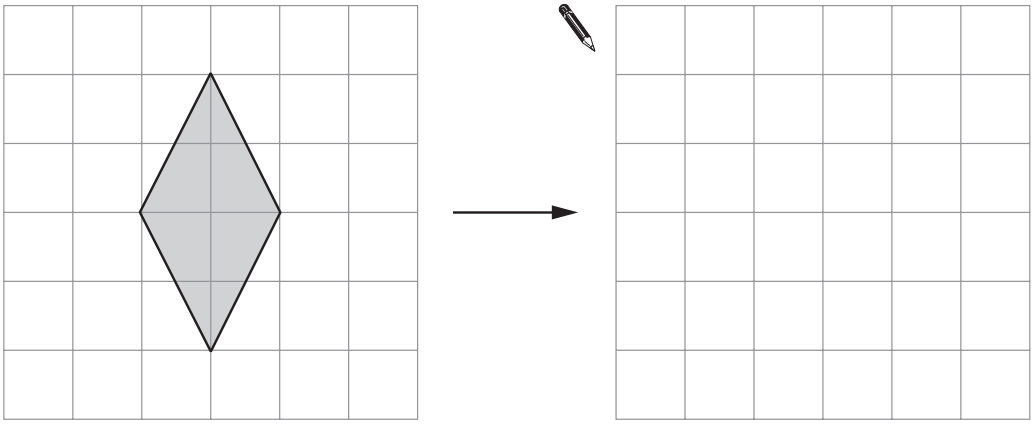
The first one is done for you.

Shape **Rectangle**





1 mark



1 mark

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12. The table shows the average length of pregnancy for different mammals.

Mammal	Average length of pregnancy
Dolphin	276 days
Horse	337 days
Seal	350 days
Whale	365 days
Camel	406 days
Elephant	640 days

Use the information in the table to answer these questions.

(a) Which mammal has an average length of pregnancy of **1 year**?

_____ 1 mark

(b) Which mammal has an average length of pregnancy of **50 weeks**?

_____ 1 mark

(c) A human has an average length of pregnancy of **about 9 months**.

Which other mammal also has an average length of pregnancy of about 9 months?

_____ 1 mark

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13. Write the missing numbers in the boxes.

4 × ☐ + 20 = 180

1 mark

4 × 20 + ☐ = 180

1 mark

4 × ☐ − 20 = 180

1 mark

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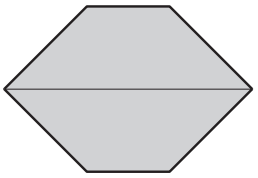
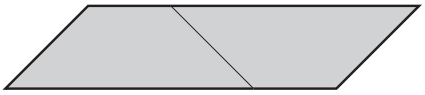
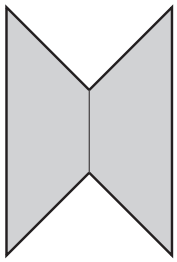
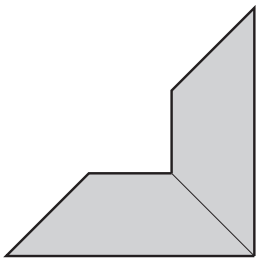
14. I use two congruent trapeziums to make the shapes below.

Tick (✓) all the shapes that are **hexagons**.









2 marks

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15. The pupils in a class had a sponsored swim.

They collected **£429.24**

(a) How much is £429.24 to the **nearest hundred pounds**?

£ _____

1 mark

(b) How much is £429.24 to the **nearest ten pounds**?

£ _____

1 mark

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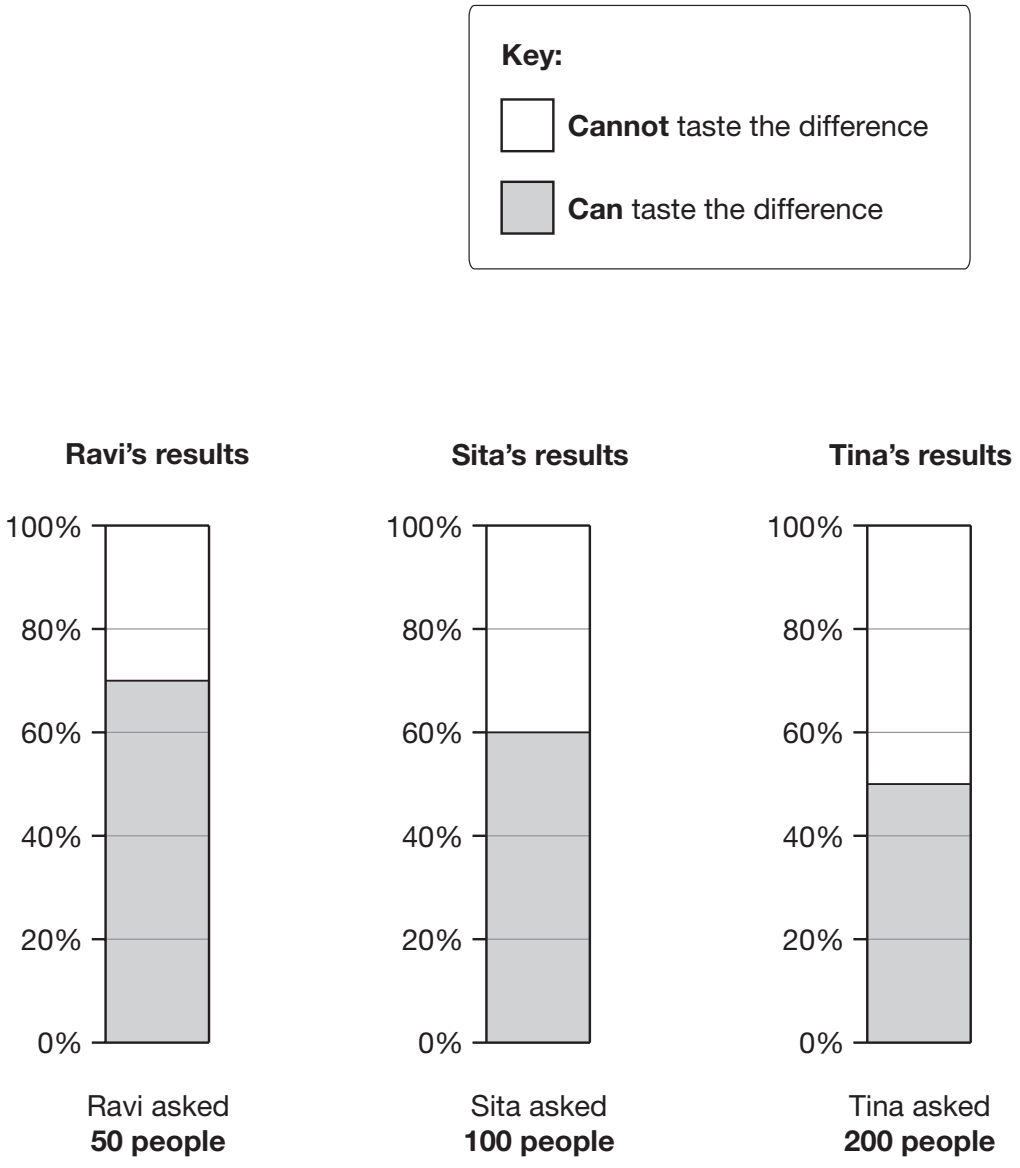
16. Wine gums are sweets that are made in different colours.

Pupils tested whether people can taste the difference between black wine gums and other wine gums.

The percentage bar charts show three pupils' results.



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(a) Complete the table.

	Number of people who were tested	Number of people who **can** taste the difference	Number of people who **cannot** taste the difference
Ravi	50		
Sita	100		
Tina	200		

3 marks

(b) Explain why **Tina's** results are likely to be **more reliable** than Ravi's or Sita's.

1 mark

17. Look at the three expressions below.

$8 + k$	$3k$	k^2

When $k = 10$, what is the value of each expression?

$8 + k =$ _____ $3k =$ _____ $k^2 =$ _____

2 marks

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18. I buy **12 packets** of cat food in a box.

The table shows the different varieties in the box.

Variety	Number of packets
Cod	3
Salmon	3
Trout	3
Tuna	3

(a) I am going to take out a packet at random from the box.

What is the **probability** that it will be **cod**?

1 mark

(b) My cat eats **all** the packets of **cod**.

I am going to take out a packet at random from the ones left in the box.

What is the **probability** that it will be **salmon**?

1 mark

(c) A different type of cat food has **10 packets** in a box.

The probability that the variety is chicken is **0.7**

What is the probability that the variety is **not** chicken?

1 mark

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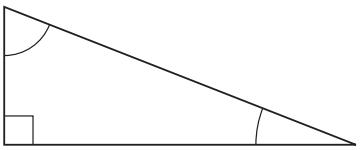
19. Some statements in the table are true. Some are false.

Beside each statement, write **true** or **false**.

For **true** statements you must **draw an example**.

The first one is done for you.

Statement	Write **true** or **false**. If true, draw an example.
Some triangles have one right angle and two acute angles.	true 
Some triangles have three right angles.	
Some triangles have three acute angles.	
Some triangles have one obtuse angle and two acute angles.	
Some triangles have two obtuse angles and one acute angle.	

3 marks

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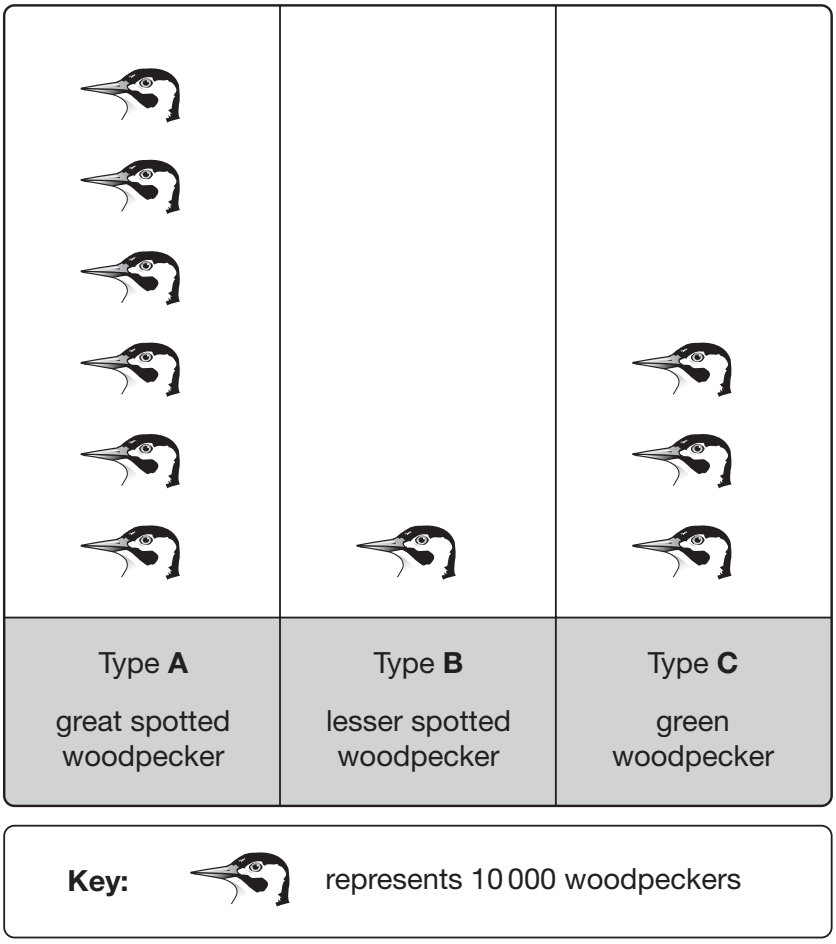
20. Three different types of woodpecker live in Britain.

The pictogram shows information about the numbers of each type.



(a) Complete the table below to show the **percentages** of each type of woodpecker.

Type A	Type B	Type C
_____ %	_____ %	_____ %

1 mark

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(b) The ratio of **type A : type B** woodpeckers is 6 : 1

What is the ratio of **type B : type C** woodpeckers?

____ : ____

1 mark

21. Write the missing numbers in the boxes.

120 mm is the same as ☐ cm

1 mark

120 cm is the same as ☐ m

1 mark

120 m is the same as ☐ km

1 mark

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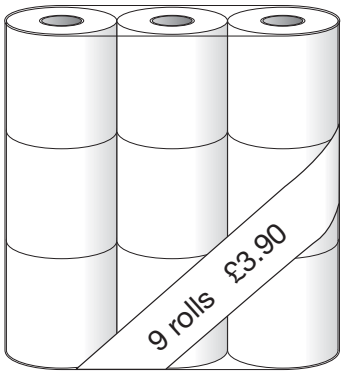
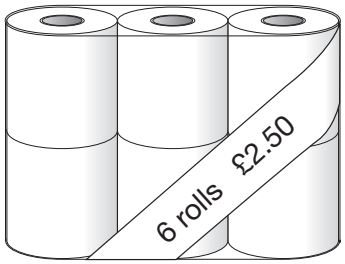
22. A shop sells toilet rolls.

You can buy them in packs of 9 or packs of 6



Pack of 9 toilet rolls
£3.90



Pack of 6 toilet rolls
£2.50

Which pack gives you better value for money?

You **must** show your working.

3 marks

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END OF TEST

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