Ma

KEY STAGE 3

TIER 3–5

2002

# 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. If you have been given a pupil number, write that also.

**First name** _____

**Last name** _____

**School** _____

**Pupil number** | | | | | | |

**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, an angle measurer or protractor, a pair of compasses 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.
- 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/02/835

# 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.** Colin and Jenny are playing a game.

(a) Colin has **four hundred and thirty** points.
Write this number in figures.

. . . . . .

1 mark

(b) Jenny has **six hundred and nine** points.
Write this number in figures.

. . . . . .

1 mark

(c) The winner is the first person to get **one thousand** points.
**How many more** points does **Jenny** need to win the game?

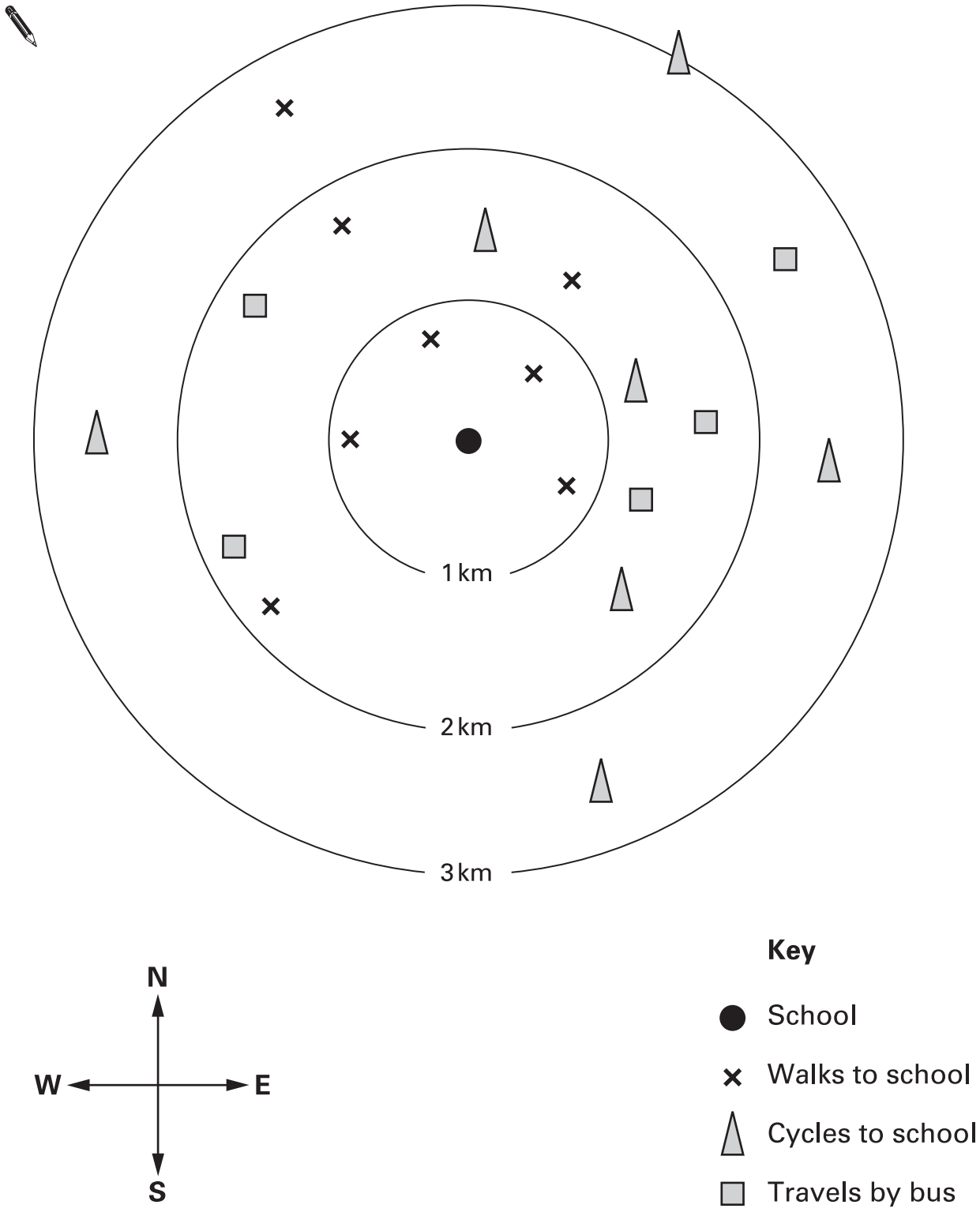
. . . . . .

1 mark

**2.** There are **20 pupils** in a class.

The chart shows where they live and how they travel to school.

The centre of the chart is the school.



(a) How many of the pupils **travel by bus** to school?

. . . . . 1 mark

(b) How many of the pupils live **more than 2 km** from the school?

. . . . . 1 mark

(c) How many of the pupils live **less than 1 km** from the school?

. . . . . 1 mark

(d) A pupil said:

I live **west** of the school and I **cycle to school**.

Which pupil said this?

Put a ring around the correct symbol on the chart.

1 mark

(e) A different pupil joins the class.

She lives **south-east** of the school.
She **travels by bus** to school.
Her house is **3 km** from the school.

Draw the correct symbol on the chart to show where the pupil lives.

2 marks

**3.** The tables show how much a week's holiday costs.

| May | |
|---|---|
| Week beginning | Cost |
| 4 May | £194 |
| 11 May | £196 |
| 18 May | £196 |
| 25 May | £209 |

| June | |
|---|---|
| Week beginning | Cost |
| 1 June | £304 |
| 8 June | £219 |
| 15 June | £234 |
| 22 June | £259 |
| 29 June | £269 |

| July | |
|---|---|
| Week beginning | Cost |
| 6 July | £279 |
| 13 July | £289 |
| 20 July | £319 |
| 27 July | £334 |

(a) The week beginning **29 June** costs more than the week beginning **22 June**.
How much more?

£ ..... 1 mark

(b) A woman pays for the weeks beginning **4 May**, **11 May** and **18 May**.

A man pays for the weeks beginning **13 July** and **20 July**.

The man pays more than the woman.

How much more?

Show your working.

£

. . . .

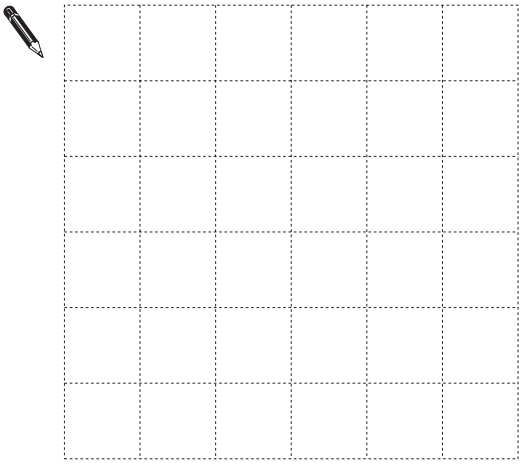
. . . .

. . . .

3 marks

**4.** (a) A shape has 4 right angles.
It has 4 straight sides.
All 4 sides are the same length.

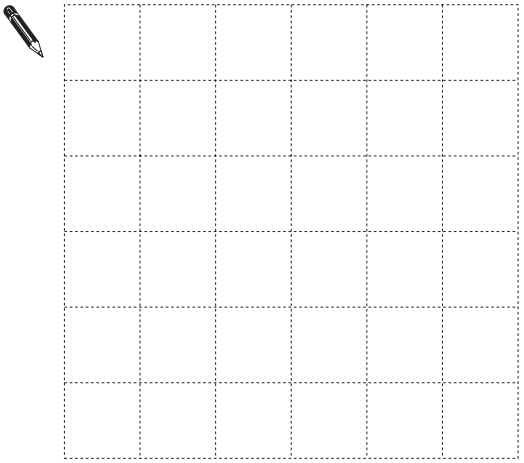
Draw what the shape could be.



1 mark

(b) A **different** shape has 4 right angles.
It has 4 straight sides.
It has 2 pairs of parallel lines.

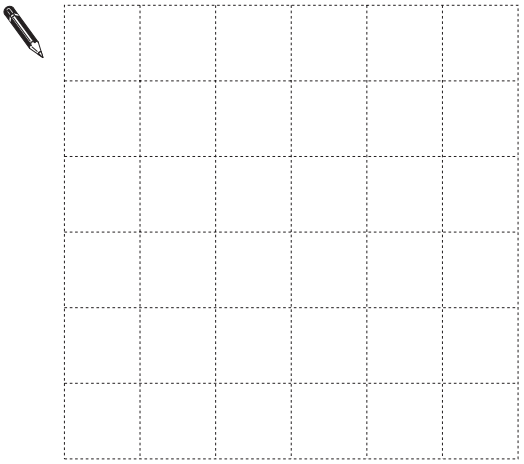
Draw what the shape could be.



1 mark

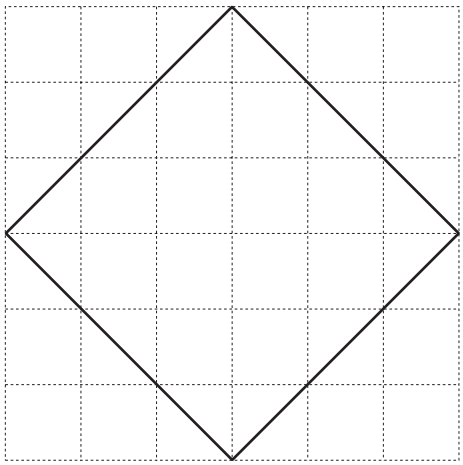
(c) A shape has no right angles.
It has 4 straight sides.
It has 2 pairs of parallel lines.

Draw what the shape could be.



1 mark

(d) Look at this shape.



Fill in the gaps in the sentences below.

The shape has ..... right angles.

It has ..... straight sides.

It has ..... pairs of parallel lines.

..... sides are the same length.

2 marks

**5.** On a school trip **each teacher** can take **no more than 20 pupils**.

(a) **Three** teachers go on a school trip.

What is the **greatest number** of pupils they can take with them?

..... pupils

1 mark

(b) The table shows how many pupils go on three school trips.

Complete the table to show the **least number** of teachers that must go with each school trip.

| Number of pupils | Number of teachers |
|---|---|
| 100 | |
| 104 | |
| 199 | |

2 marks

**6.** Some towns and villages have very long names.

The table shows information about the ten longest place names in the UK.

| Number of letters | Country |
|---|---|
| 67 | Wales |
| 58 | Wales |
| 27 | England |
| 22 | Wales |
| 21 | Wales |
| 21 | Wales |
| 19 | England |
| 18 | England |
| 18 | Scotland |
| 17 | Scotland |

(a) The longest place name in **Wales** has more letters than the longest place name in **Scotland**.

How many more?

. . . . . .

1 mark

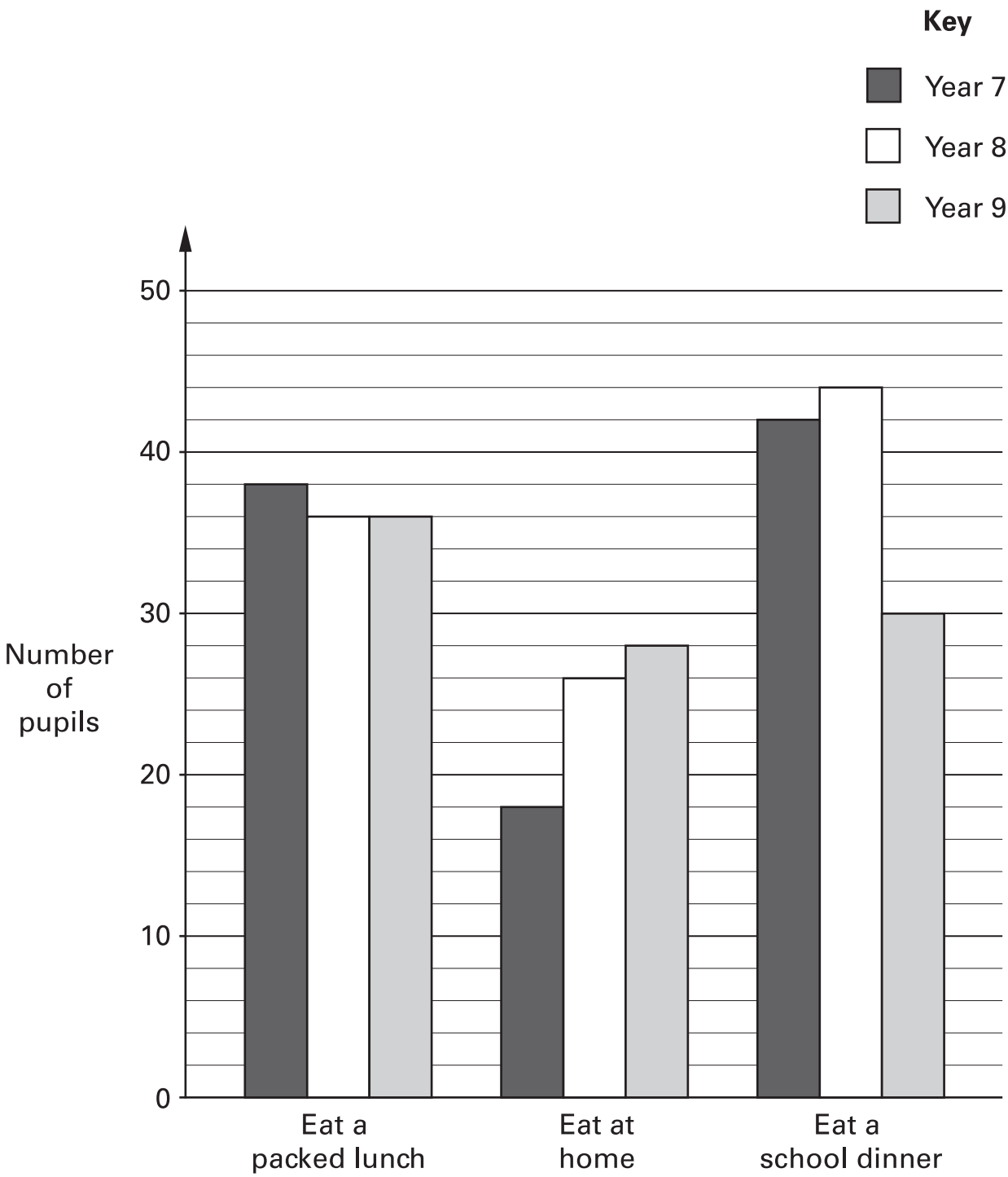
(b) **50%** of the ten longest place names are in Wales.

What percentage of the ten longest place names are in **England**?

. . . . . %

1 mark

**7.** The diagram shows what pupils in years 7, 8 and 9 choose to do at dinner time.



(a) A pupil from each year group is chosen at random.

Are they **most likely** to eat a packed lunch, or eat at home, or eat a school dinner?

Tick (✓) the correct boxes.

| | Eat a packed lunch | Eat at home | Eat a school dinner |
|---|---|---|---|
| Pupil from year 7 | ☐ | ☐ | ☐ |
| Pupil from year 8 | ☐ | ☐ | ☐ |
| Pupil from year 9 | ☐ | ☐ | ☐ |

2 marks

(b) How many **more** pupils are there in year **8** than year **9**?

Show your working.

.....

2 marks

**8.** Here is some information about a school.

There are **3 classes** in **year 8**. Each class has **27 pupils**.

There are **4 classes** in **year 9**. Each class has **25 pupils**.

(a) Use the information to match each question with the correct calculation.
The first one is done for you.

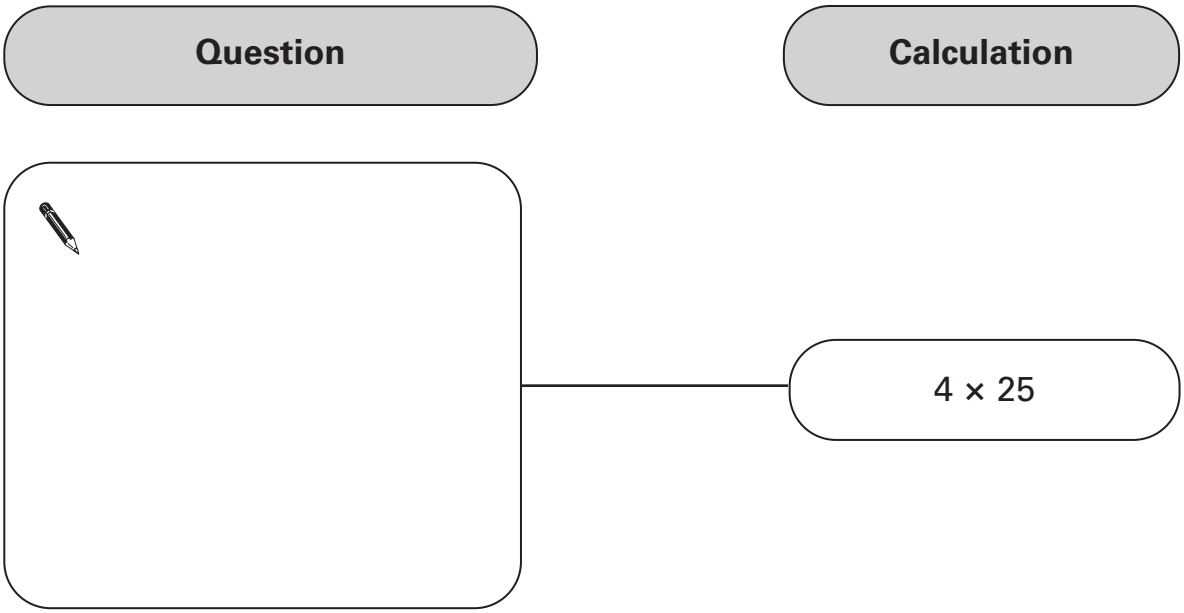
| Question | Calculation |
|---|---|
| How many **classes** are there altogether in years 8 and 9? | 3 + 4 |
| | 3 – 4 |
| | 4 – 3 |
| There are more **classes** in year 9 than in year 8. How many more? | (3 × 27) + (4 × 25) |
| | (3 + 27) + (4 + 25) |
| How many **pupils** are there altogether in years 8 and 9? | (3 × 27) – (4 × 25) |
| | (4 + 25) – (3 + 27) |
| There are more **pupils** in year 9 than in year 8. How many more? | (4 × 25) – (3 × 27) |

1 mark

1 mark

1 mark

(b) Use the information about the school to write what the missing question could be.




1 mark

**9.** I throw a fair coin.

For each statement below, put a tick (✓) to show if the statement is **True** or **False**.

(a) On **each** throw, the probability of getting a head is $\frac{1}{2}$

True ☐ False ☐

Explain your answer.

1 mark

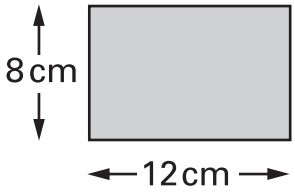
(b) On **four throws**, it is **certain** that I will get two heads and two tails.

True ☐ False ☐

Explain your answer.

1 mark

**10.** (a) I have a rectangle made out of paper.
The rectangle measures 12 cm by 8 cm.




I want to **fold** the rectangle **in half** to make a smaller rectangle.
I can do this in two different ways.

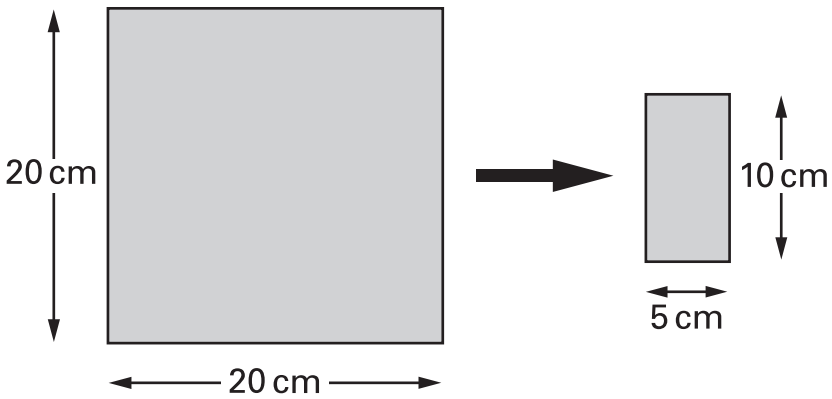
What size could the smaller rectangle be? Write both ways.

first way: ..... cm by ..... cm

second way: ..... cm by ..... cm

2 marks

(b) I have a square made out of paper. The square measures 20 cm by 20 cm.
I keep folding it in half until I have a rectangle that is 5 cm by 10 cm.




How many times did I fold it?

.....

1 mark

**11.** Some people use **yards** to measure length.

The diagram shows one way to change yards to metres.


(a) Change **100 yards** to metres.

..... metres

1 mark

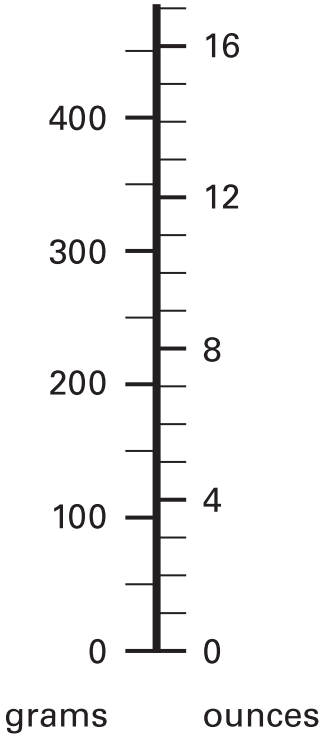
(b) Change **100 metres** to yards.

Show your working.

..... yards

2 marks

**12.** A scale measures in **grams** and in **ounces**.




Use the scale to answer these questions.

(a) About how many ounces is **400 grams**?

..... ounces

1 mark

(b) About how many grams is **8 ounces**?

..... grams

1 mark

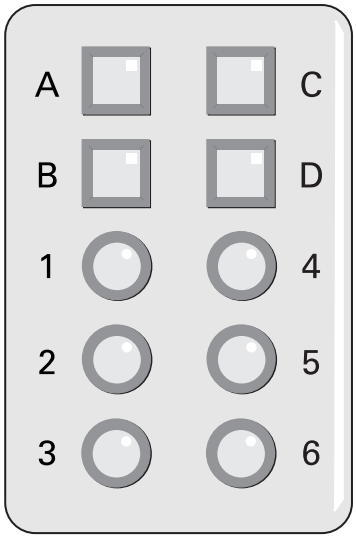
(c) About how many ounces is **1 kilogram**?

Explain your answer.

..... ounces

2 marks

**13.** A door has a security lock.




To open the door you must press the correct buttons.

The code for the door is one letter followed by a single digit number.

For example: B6

(a) How many **different** codes are there altogether?

Show your working.

. . . . . .

. . . . . 2 marks

(b) I know that the correct code begins with D

I press D, then I guess the single digit number.

What is the probability that I open the door?

. . . . . 1 mark

**14.** Screenwash is used to clean car windows.

To use Screenwash you mix it with water.

| **Winter mixture** | **Summer mixture** |
|---|---|
| Mix **1** part Screenwash with **4** parts water. | Mix **1** part Screenwash with **9** parts water. |

(a) In **winter**, how much water should I mix with **150 ml of Screenwash**?

..... ml

1 mark

(b) In **summer**, how much Screenwash should I mix with **450 ml of water**?

..... ml

1 mark

(c) Is this statement correct?

**25%** of **winter** mixture is **Screenwash**.

Tick (✓) Yes or No.

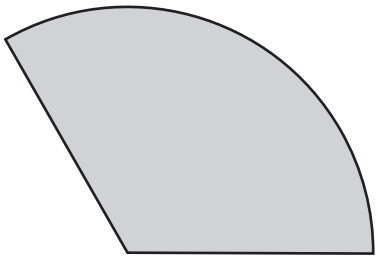
Yes ☐ No ☐

Explain your answer.

1 mark

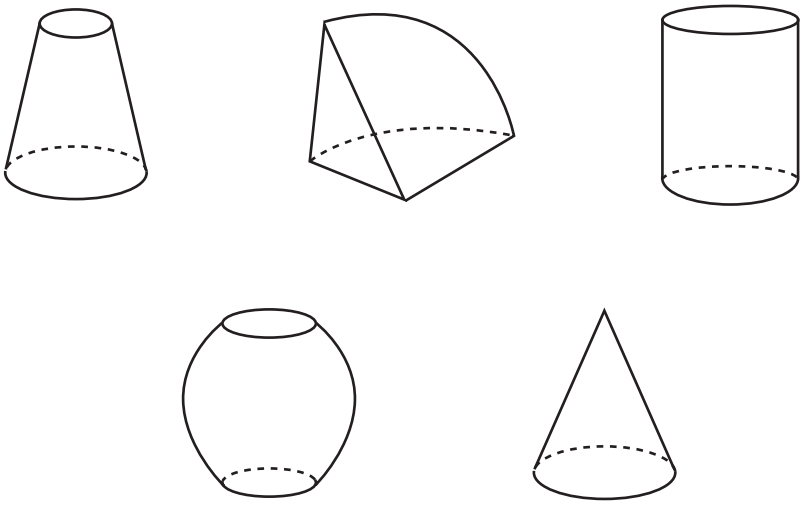
**15.** (a) I have a paper circle.

Then I cut a sector from the circle. It makes this net.



Which 3-D shape below could I make with my net?

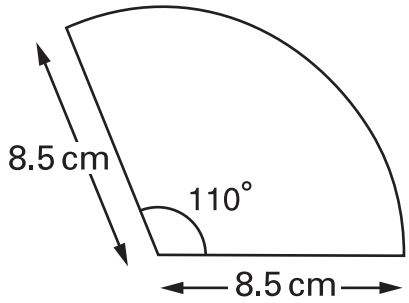
Tick (✓) your answer.



1 mark

(b) Here is a sketch of my net.

Not drawn accurately




Make an **accurate drawing** of my net.

. . . .

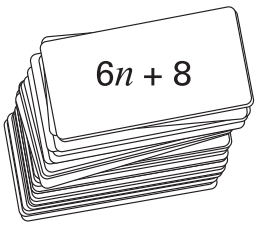
. . . .

. . . .

3 marks

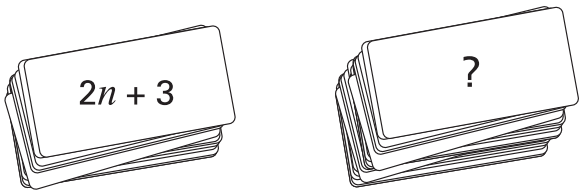
**16.** A teacher has a large pile of cards.

An expression for the **total** number of cards is **$6n + 8$**




(a) The teacher puts the cards in two piles.

The number of cards in the first pile is **$2n + 3$**



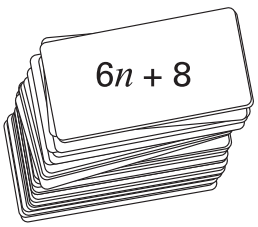

first pile second pile

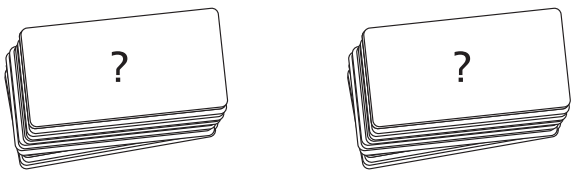
Write an expression to show the number of cards in the second pile.

1 mark

(b) The teacher puts all the cards together.

Then he uses them to make **two equal piles**.



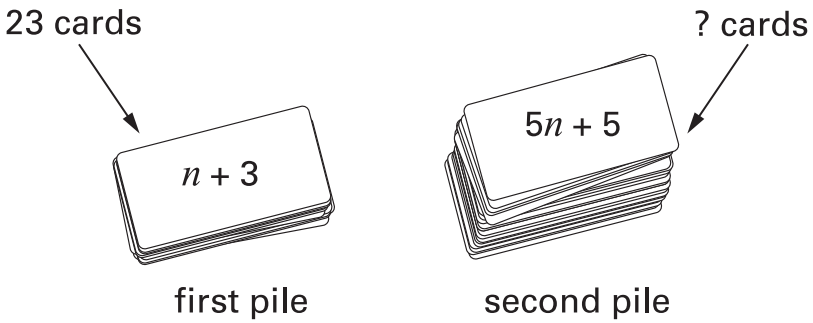




Write an expression to show the number of cards in one of the piles.

1 mark

(c) The teacher puts all the cards together again, then he uses them to make two piles.

There are **23** cards in the first pile.




How many cards are in the second pile?

Show your working.

. . . . .

. . . . . . . . . . . . .

. . . . .

2 marks

**17.** Hannah went on a cycling holiday.

The table shows how far she cycled each day.

| Monday | Tuesday | Wednesday | Thursday |
|---|---|---|---|
| 32.3 km | 38.7 km | 43.5 km | 45.1 km |

Hannah says:

'On average, I cycled **over 40 km** a day'.

Show that Hannah is wrong.

. . . .

. . . .

2 marks

**END OF TEST**

QCA, Key Stage 3 Team, 83 Piccadilly, London W1J 8QA

01-8633/3