Ma

KEY STAGE 3

TIERS 3–5

2006

Mathematics test

Paper 1

Calculator **not** 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 **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.

For marker's use only | Total marks |

QCA/06/1924

270029_MaP1_T3-5.indd 1 14/12/05 7:45:13 pm

Instructions

Answers



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

Calculators



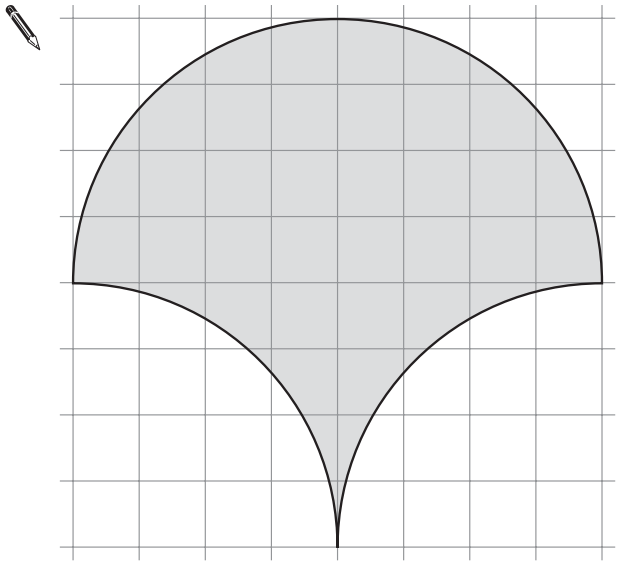
You **must not** use a calculator to answer any question in this test.

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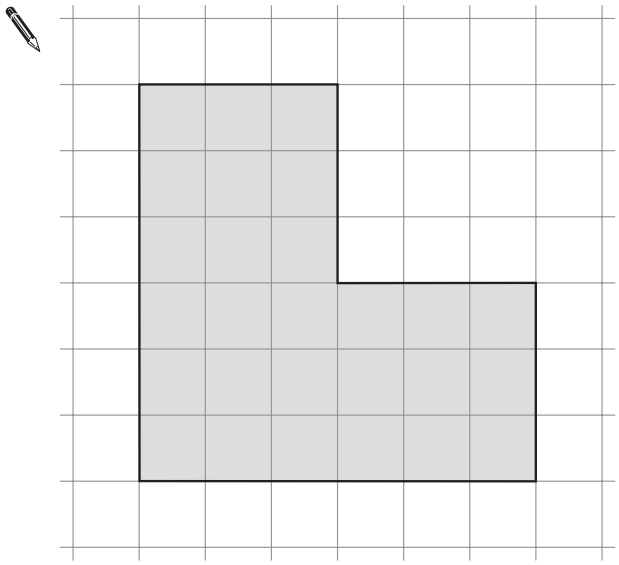
1. The shapes below are drawn on square grids.

Each shape has **one line of symmetry**.

Draw the line of symmetry on each shape.



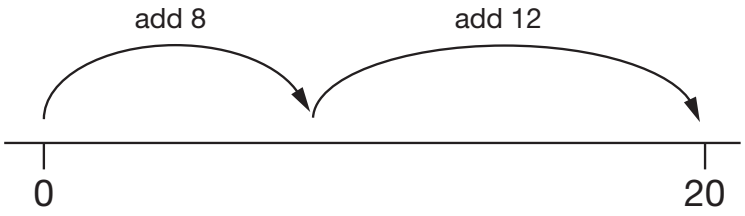
1 mark



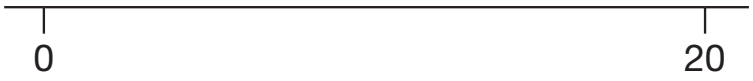
1 mark

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2. This number line shows one way to use **two steps** to move from 0 to 20

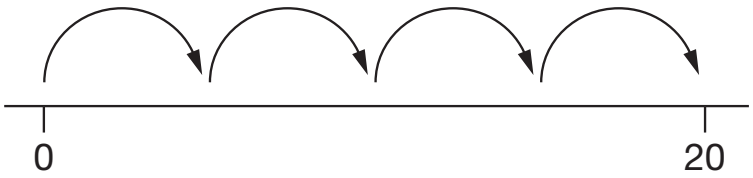


(a) On the number line below, show a **different** way to use **two steps** to move from 0 to 20



1 mark

(b) This number line shows how to use **four steps** of the **same size** to move from 0 to 20



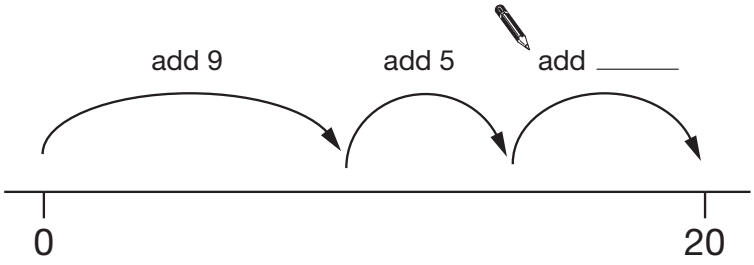
Complete the sentence below.

Each step is **add** _____

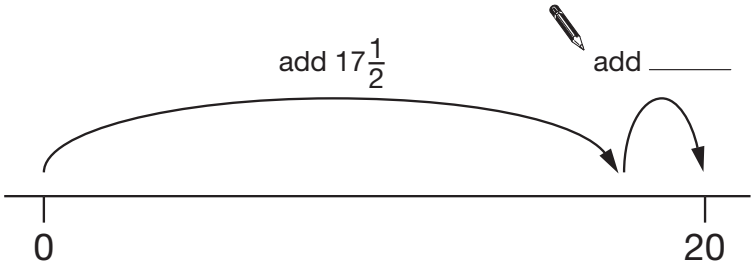
1 mark

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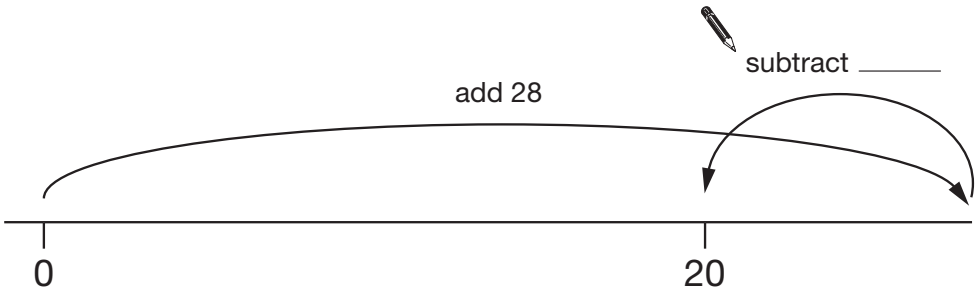
(c) Write the missing number on each number line to show how to move from 0 to 20



1 mark



1 mark



1 mark

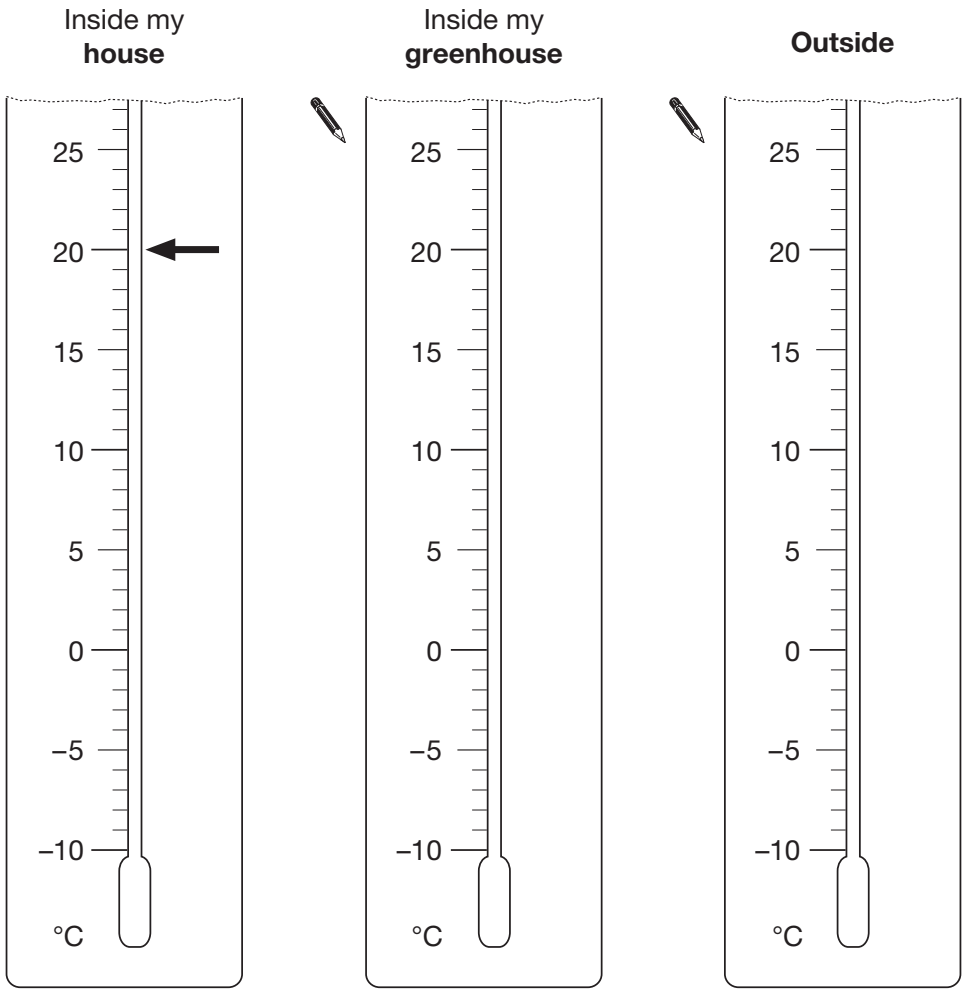
270029_MaP1_T3-5.indd 5 14/12/05 7:45:15 pm

3. The table shows some temperatures for one day in winter.

Place	Temperature
Inside my **house**	20°C
Inside my **greenhouse**	8°C
Outside	–2°C

Draw arrows on the diagrams below to show these temperatures.

The first one is done for you.



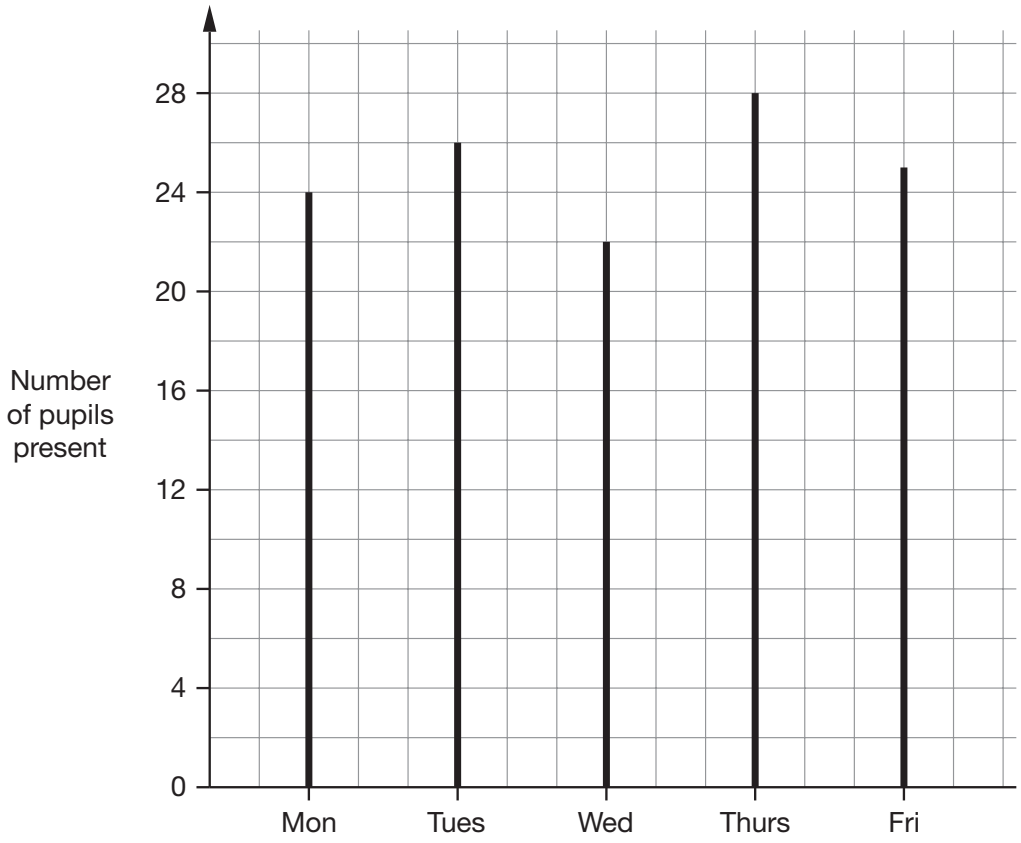
1 mark

1 mark

270029_MaP1_T3-5.indd 6 14/12/05 7:45:15 pm

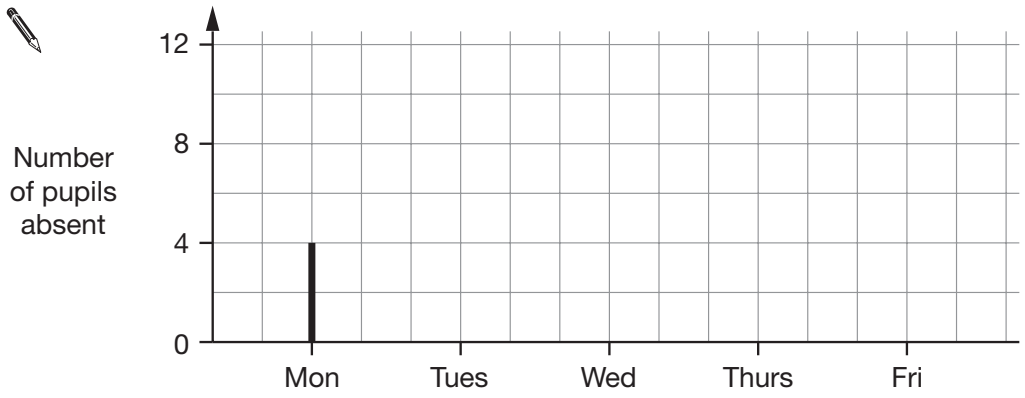
4. There are **28 pupils** in class 9K.

The chart shows the number of pupils **present** each day, in class 9K.



Four pupils were absent on Monday.

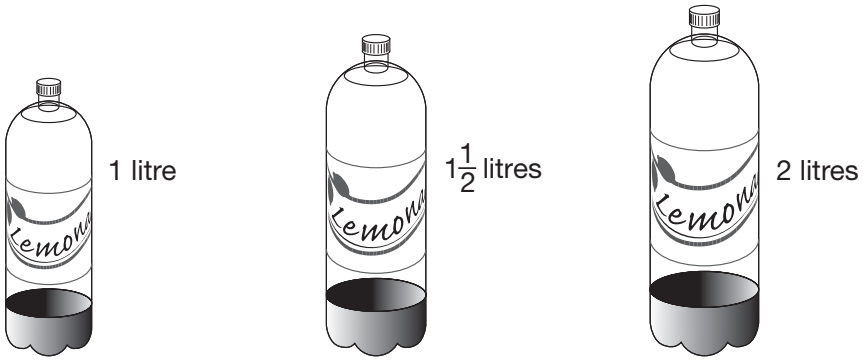
Complete the chart below to show the number of pupils **absent** each day, in class 9K.



2 marks

270029_MaP1_T3-5.indd 7 14/12/05 7:45:16 pm

5. A shop sells three different sized bottles of lemonade.



(a) I want **3 litres** of lemonade.

I could buy **three** bottles of size **1 litre**.

How much would that cost?

£ _____

1 mark

(b) Write a **different way** I could buy exactly 3 litres of lemonade.

_____

Now work out how much it would cost.

£ _____

1 mark

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(c) Write another **different way** I could buy exactly 3 litres of lemonade.



_____

Now work out how much it would cost.



£ _____

1 mark

(d) My friend buys seven bottles of lemonade.

Two of the bottles are of size $1\frac{1}{2}$ **litres**.

Five of the bottles are of size **2 litres**.

How many litres is that altogether?



_____ litres

2 marks

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6. (a) Work out



37 + 46 = _____ 1 mark

37 × 5 = _____ 1 mark

(b) What number do you need to **add to 63** to make 100?



_____ 1 mark

(c) What number do you need to **subtract from 100** to make 38?

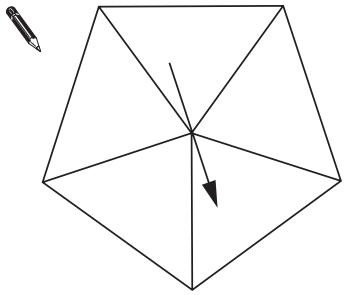


_____ 1 mark

270029_MaP1_T3-5.indd 10 14/12/05 7:45:17 pm

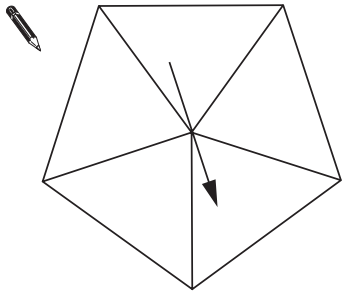
7. On each spinner **write five numbers** to make the statements correct.

It is **certain** that you will get a number **less than 6**



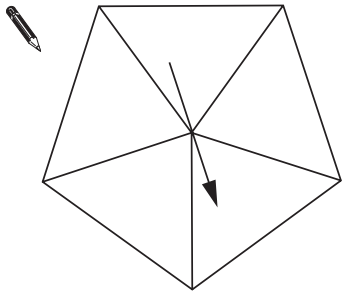
1 mark

It is **more likely** that you will get an **even** number than an **odd** number.



1 mark

It is **impossible** that you will get a **multiple of 3**

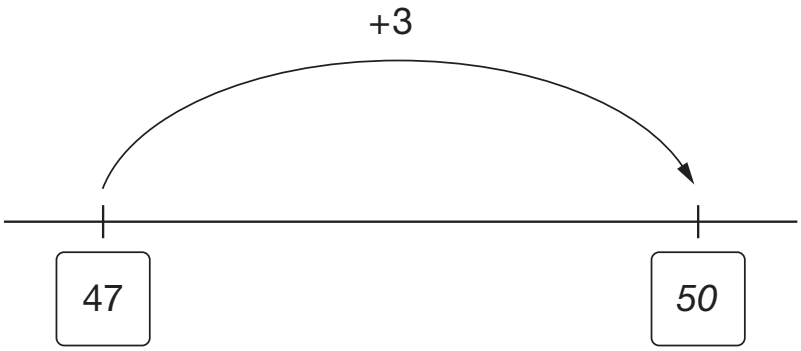


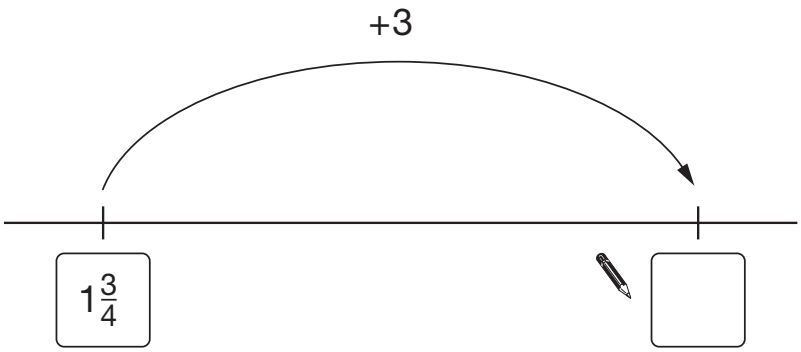
1 mark

270029_MaP1_T3-5.indd 11 14/12/05 7:45:17 pm

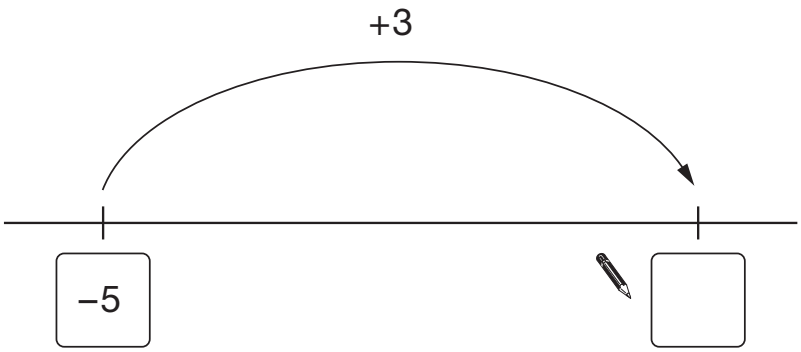
8. **Add three** to the number on each number line.

The first one is done for you.





1 mark



1 mark

270029_MaP1_T3-5.indd 12 14/12/05 7:45:18 pm

9. Work out the missing numbers.

In each part, you can use the first line to help you.

(a)

$16 \times 15 = 240$

$16 \times ____ = 480$

1 mark

(b)

$46 \times 44 = 2024$

$46 \times 22 = ____$

1 mark

(c)

$600 \div 24 = 25$

$600 \div ____ = 50$

1 mark

270029_MaP1_T3-5.indd 13 14/12/05 7:45:18 pm

10. Red Kites are large birds that were very rare in England.

Scientists set free some Red Kites in 1989 and hoped they would build nests.

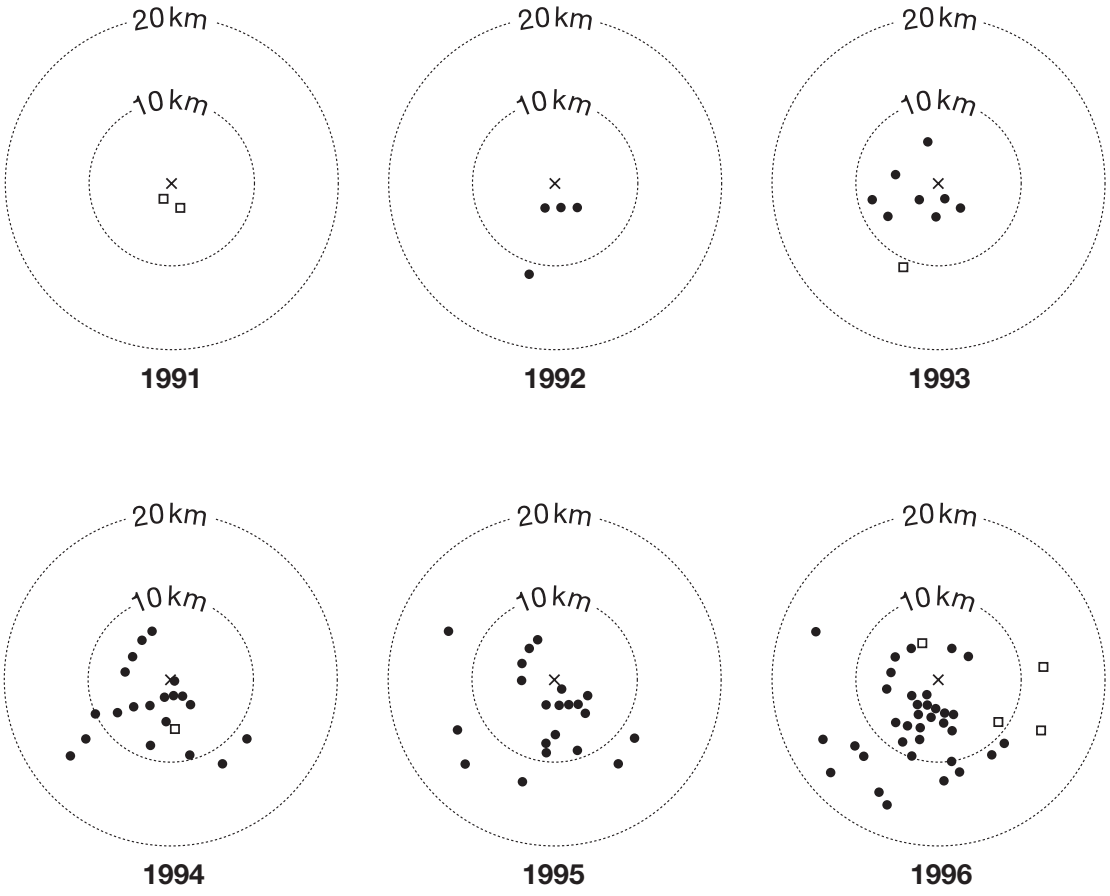
The diagrams show how many nests the birds built from 1991 to 1996.

Key:

× shows where the birds were set free.

▫ represents a nest without eggs.

• represents a nest with eggs.



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Use the diagrams to answer these questions.

(a) Which was the first year there were nests **with eggs**?

_____

1 mark

(b) In **1993**, how many nests were there **without eggs**?

_____

1 mark

(c) In **1995**, how many nests were **more than 10 km** from where the birds were set free?

_____

1 mark

(d) Explain what happened to the **number** of nests, over the years.

1 mark

Now explain what happened to the **distances** of the nests from where the birds were set free, over the years.

1 mark

270029_MaP1_T3-5.indd 15 14/12/05 7:45:19 pm

11. (a) **Add** together 1740 and 282



1 mark

(b) Now **add** together 17.4 and 2.82

You can use part (a) to help you.



1 mark

(c) 3.5 + 2.35 is **bigger** than 3.3 + 2.1

How much bigger?

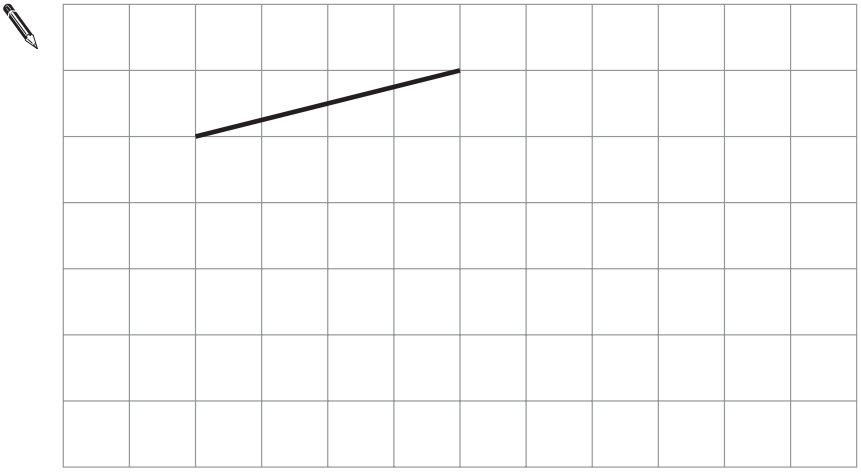


2 marks

270029_MaP1_T3-5.indd 16 14/12/05 7:45:20 pm

12. (a) The line on the square grid below is one side of a **square**.

Draw 3 more lines to complete the square.

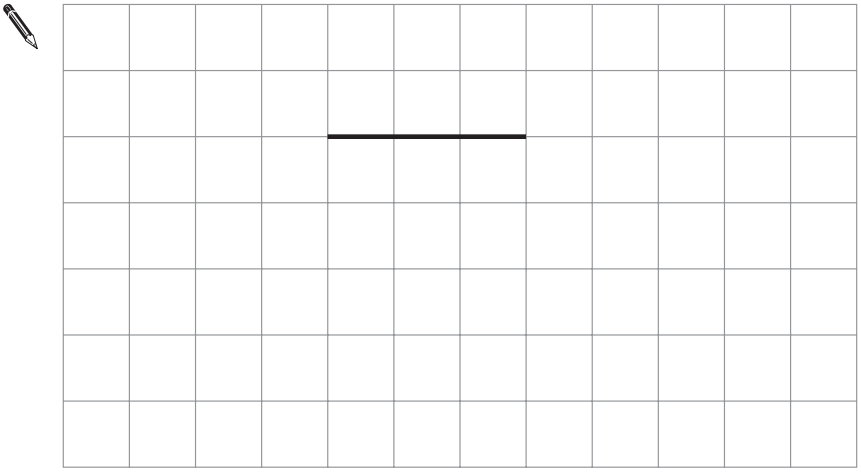


1 mark

(b) The line on the square grid below is one side of a **quadrilateral**.

The quadrilateral has **only one pair of parallel sides**.

Draw 3 more lines to show what the quadrilateral could be.



1 mark

270029_MaP1_T3-5.indd 17 14/12/05 7:45:20 pm

13. (a) Show that **9 × 28** is **252**



1 mark

(b) What is **27 × 28**?

You can use part (a) to help you.



2 marks

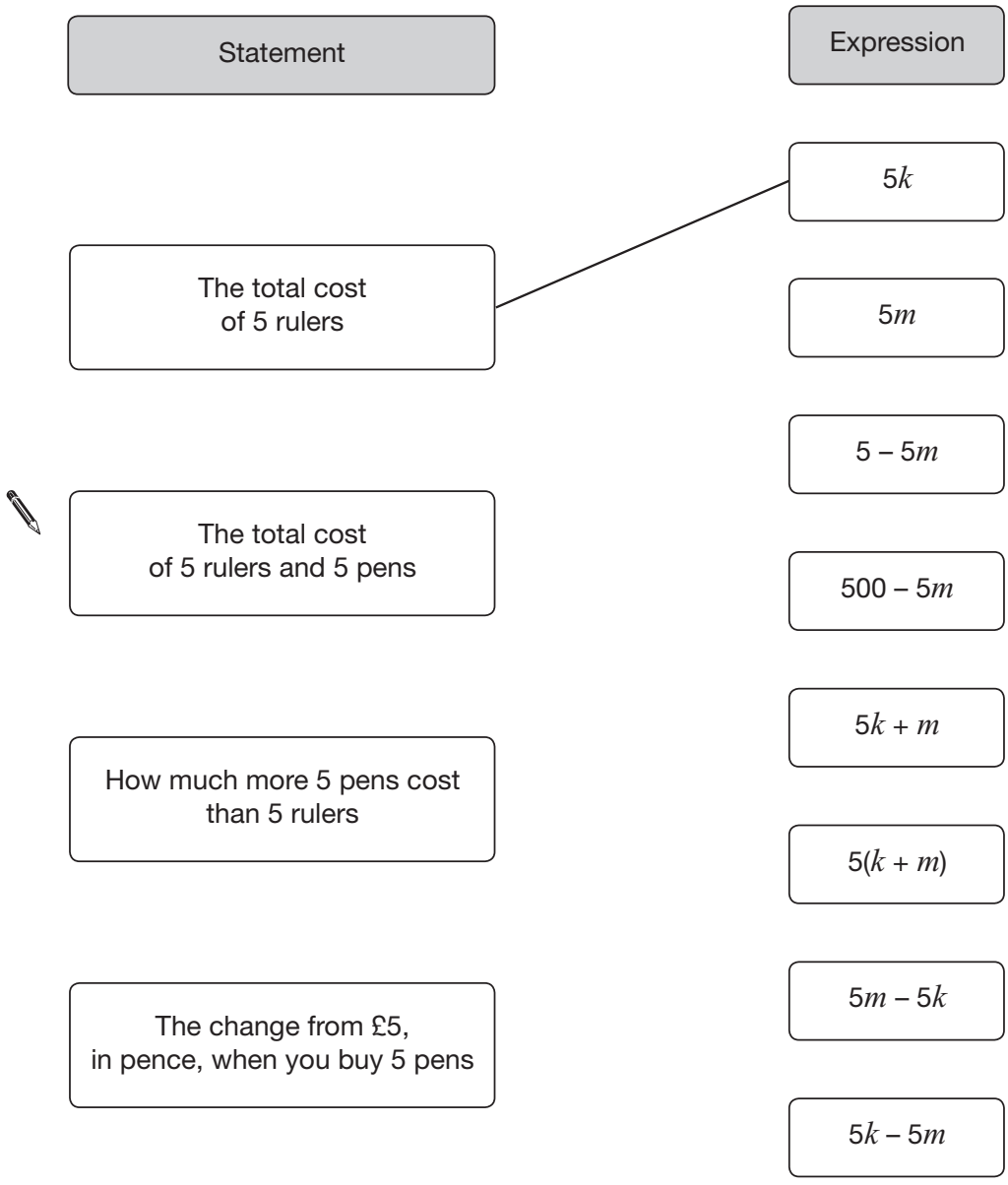
270029_MaP1_T3-5.indd 18 14/12/05 7:45:21 pm

14. A ruler costs k pence.

A pen costs m pence.

Match each statement with the correct expression for the amount in pence.

The first one is done for you.



1 mark

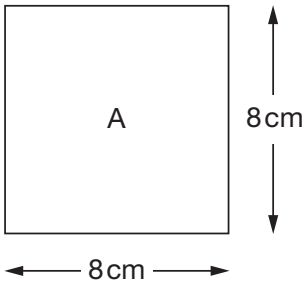
1 mark

1 mark

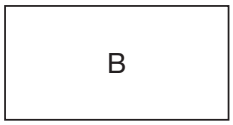
270029_MaP1_T3-5.indd 19 14/12/05 7:45:21 pm

15. (a) I have a square piece of paper.

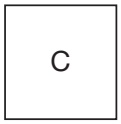
The diagram shows information about this square labelled A.



I fold square A **in half** to make rectangle B.



Then I fold rectangle B **in half** to make square C.



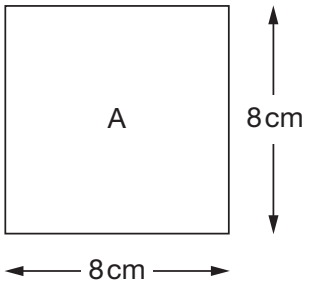
Complete the table below to show the area and perimeter of each shape.

	Area	Perimeter
Square A	cm^2	cm
Rectangle B	cm^2	cm
Square C	cm^2	cm

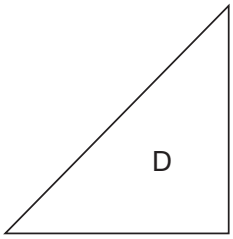
3 marks

270029_MaP1_T3-5.indd 20 14/12/05 7:45:22 pm

(b) I start again with square A.



Then I fold it **in half** to make triangle D.



What is the **area** of triangle D?

_____ cm^2

1 mark

(c) One of the statements below is true for the **perimeter** of triangle D.

Tick (✓) the correct one.

The perimeter is less than 24 cm. ☐

The perimeter is 24 cm. ☐

The perimeter is greater than 24 cm. ☐

Explain your answer.

1 mark

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16. (a) Work out the missing values.



10% of 84 = _____

5% of 84 = _____

$2\frac{1}{2}$% of 84 = _____

2 marks

(b) The cost of a CD player is £84 **plus** $17\frac{1}{2}$ % tax.

What is the **total** cost of the CD player?

You can use part (a) to help you.



£

2 marks

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17. Solve these equations.

$2k + 3 = 11$



$k =$ _____ 1 mark

$2t + 3 = -11$



$t =$ _____ 1 mark

270029_MaP1_T3-5.indd 23 14/12/05 7:45:23 pm

18. (a) I am thinking of a number.

My number is a **multiple of 4**

Tick (✓) the true statement below.

My number must be even	My number must be odd	My number could be odd or even
☐	☐	☐

Explain how you know.

1 mark

(b) I am thinking of a **different** number.

My number is a **factor of 20**

Tick (✓) the true statement below.

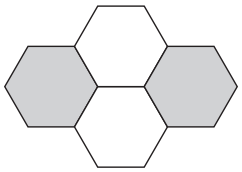
My number must be even	My number must be odd	My number could be odd or even
☐	☐	☐

Explain how you know.

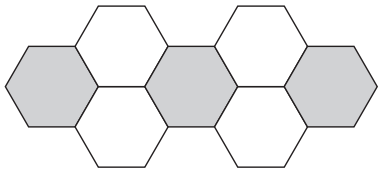
1 mark

270029_MaP1_T3-5.indd 24 14/12/05 7:45:24 pm

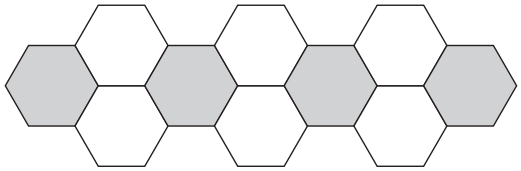
19. Look at this sequence of patterns made with hexagons.



pattern number **1**



pattern number **2**



pattern number **3**

To find the number of hexagons in pattern number n you can use these rules:

Number of **grey** hexagons	=	$n + 1$
Number of **white** hexagons	=	$2n$

Altogether, what is the total number of hexagons in **pattern number 20**?

2 marks

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END OF TEST

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END OF TEST

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