Year 9 mathematics test

Paper 2

Calculator allowed

First name _____

Last name _____

Class _____

Date _____

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

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 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 marking 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.

2

1. The table shows information about classes in a school.

Class	Year group	Number of girls	Number of boys
A	10	16	12
B	9	13	13
C	10	14	15
D	8	12	14
E	11	14	14
F	7	15	16
G	8	12	13

(a) Which two classes are in year **8**?

Write their letters.

_____ and _____

1 mark

(b) Which two classes have the **same number** of boys as girls?

Write their letters.

_____ and _____

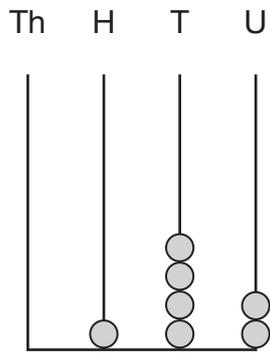1 mark

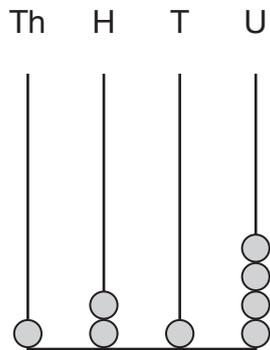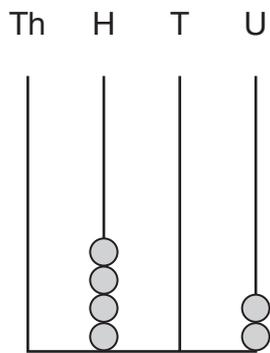(c) Which class has the **most pupils** altogether?

Write its letter.

_____

1 mark

2. Join each abacus to the number it shows. One is done for you.

Th   H   T   U

1214

142

2040

204

402

2 marks

102009_p2.35.indd   4   18/12/2009   11:53:44
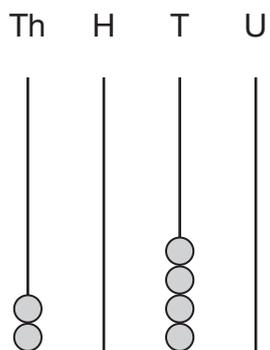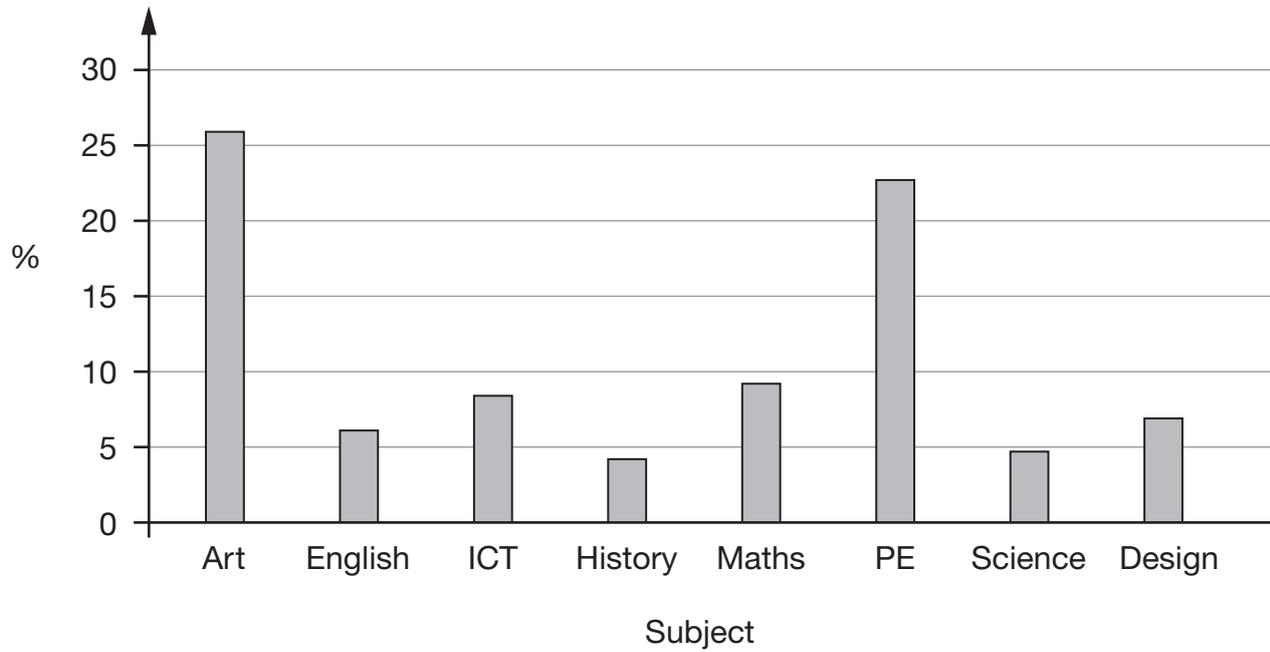
3. About 50 000 pupils answered the question:

> What is your favourite subject at school?

The bar chart shows the results for the subjects that were most popular.

(a) The most popular subject was Art.

Which subject was the **third** most popular?

_____

(b) About what percentage of the pupils chose PE?

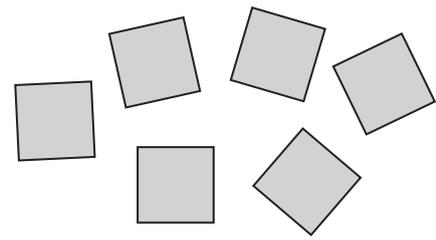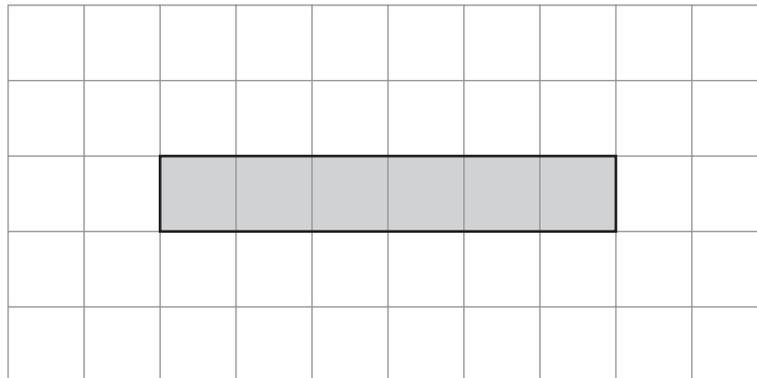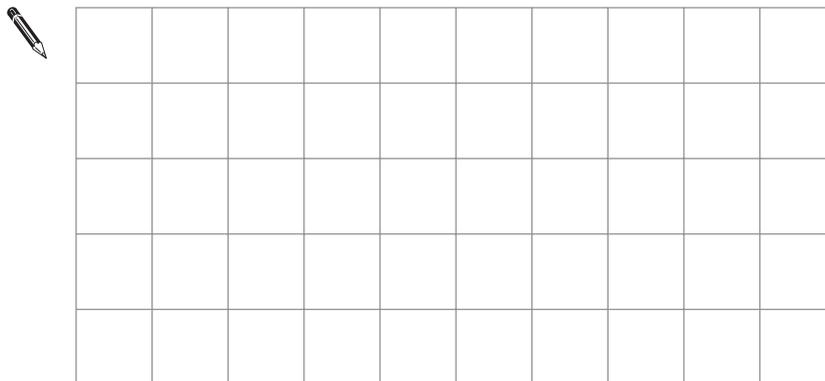_____ %

4. Stacey has **6** square tiles that are all the same size.

She joins the 6 tiles to make this rectangle.

(a) On the grid below, **draw a different** rectangle she could make using the 6 tiles.

(b) Stacey wants to make a **square** using **more than her 6 tiles**.

How many **more** tiles does she need?

_____ more

5.   The table shows when planes are due to land at an airport.

Flying from	Landing time
Rome	14:50
Belfast	15:10
Dublin	15:20
Madrid	15:25
Paris	15:30
Oslo	15:35

(a)   What time is the plane from **Dublin** due to land?

_____ : _____

1 mark

(b)   The time is now **14:55**

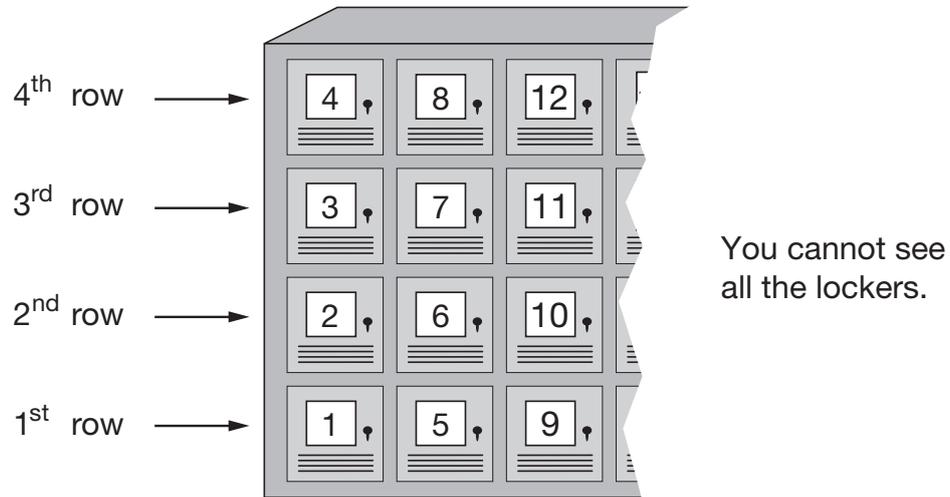In how many minutes is the plane from **Oslo** due to land?

_____ minutes

1 mark

102009_p2.35.indd   7   18/12/2009   11:53:46

6. At a school the lockers are in 4 rows.

Each locker has a number.

4th row ⟶

3rd row ⟶

2nd row ⟶

1st row ⟶

You cannot see
all the lockers.

(a) Locker number 5 is in the 1st row.

In which row is locker number **18**?

_____ row

(b) Jan's locker is in the **4th row**.

Jan says:

My locker number is **57**

Without counting every locker, explain how you can tell that Jan must be **wrong**.

7. (a) I think of a number.

I **double** my number and the answer is **178**

What is my number?

_____

1 mark

(b) I think of a different number.

I **double** my number, then I **double again**.

The answer is **312**

What is my number?

_____

1 mark

102009_p2.35.indd   9   18/12/2009   11:53:46

8.   Circle the two numbers which round to 70

63   75

73   67   76

9.   Here are four digit cards.
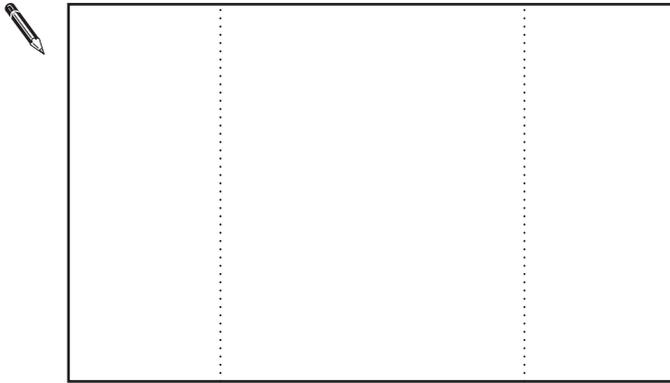
1   2   3   4

Show all the different **two-digit numbers** that are **bigger than 30** that you can make using these cards.

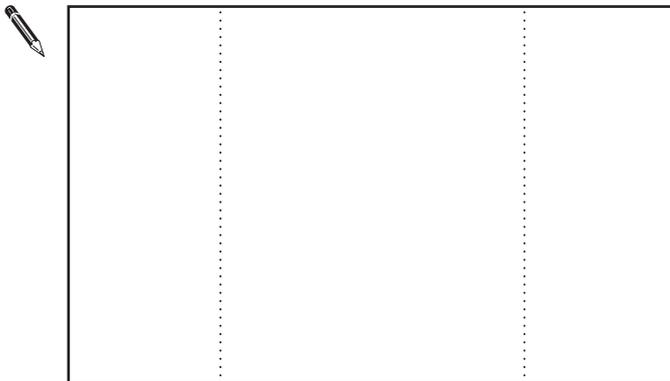You can use the cards more than once.

10.   Inside this rectangle, **use a ruler** to draw a straight line.

The line must be $4\frac{1}{2}$ **cm** long and **cross both** dotted lines.

Inside this rectangle, **use a ruler** to draw a straight line.

The line must be exactly **5 cm** long and **cross one** dotted line.

11.   Write the missing numbers.

$$962 + \underline{\hspace{3cm}} = 1898$$

$$\underline{\hspace{3cm}} - 403 = 982$$

$$51 \times \underline{\hspace{3cm}} = 2397$$

$$\underline{\hspace{3cm}} \div 23 = 828$$

102009_p2.35.indd   12   18/12/2009   11:53:47

12. A shop charges to deliver food to people's homes.

The cost depends on the day of delivery.

Day of delivery	Cost
Tuesday or Wednesday	£3.99
Monday or Thursday	£4.99
Friday or Saturday	£5.99
Sunday	£6.99

July 2008						
Su	M	Tu	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

(a) What is the cost of delivery on **18 July 2008**?

£ _____

1 mark

(b) Mrs Jones wants a delivery **every Thursday** in **July 2008**.

How much will that cost altogether?

£ _____

1 mark

(c) What is the cost of delivery on **5 August 2008**?

£ _____

1 mark

102009_p2.35.indd 13   18/12/2009 11:53:47

13. Write multiples to make these additions correct.

12 + ☐ = ☐

      ↑   ↑   ↑

multiple of **3**   multiple of **4**   multiple of **5**

1 mark

☐ + ☐ = 30

multiple of **3**   multiple of **4**   multiple of **5**

1 mark

14.   Here is a shape on a square grid.
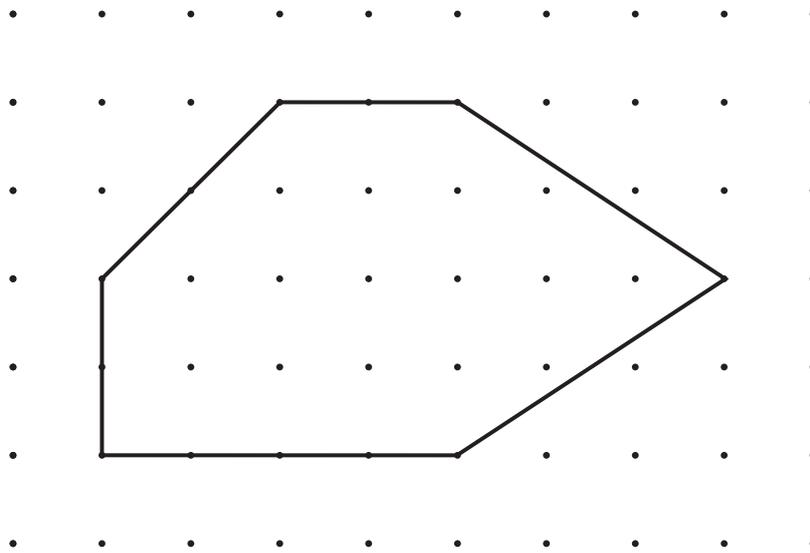
Here are some statements about the shape.

For each statement tick (✔) True or False.
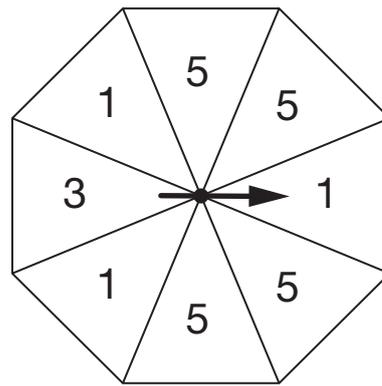
	True	False
The shape has **no** right angles.	☐	☐
The shape has **four** obtuse angles.	☐	☐
The shape has **no** lines of symmetry.	☐	☐
The shape has **two pairs** of parallel sides.	☐	☐

2 marks

15. Tom has a fair spinner with 8 equal sections.

He is going to spin the pointer.

Draw lines to show how likely the following are.

One is done for you.

He will spin the **number 3**	certain
He will spin the **number 5**	likely
He will spin the **number 6**	even chance
He will spin a **number less than 7**	unlikely
	impossible

2 marks

16. Two websites sell the same type of radio.

	Website A	Website B
Cost of radio	£79.99	£76.76
Cost of postage	£3.49	£6.79

Sunil is going to buy the radio from one of the websites.

He also has to pay for postage.

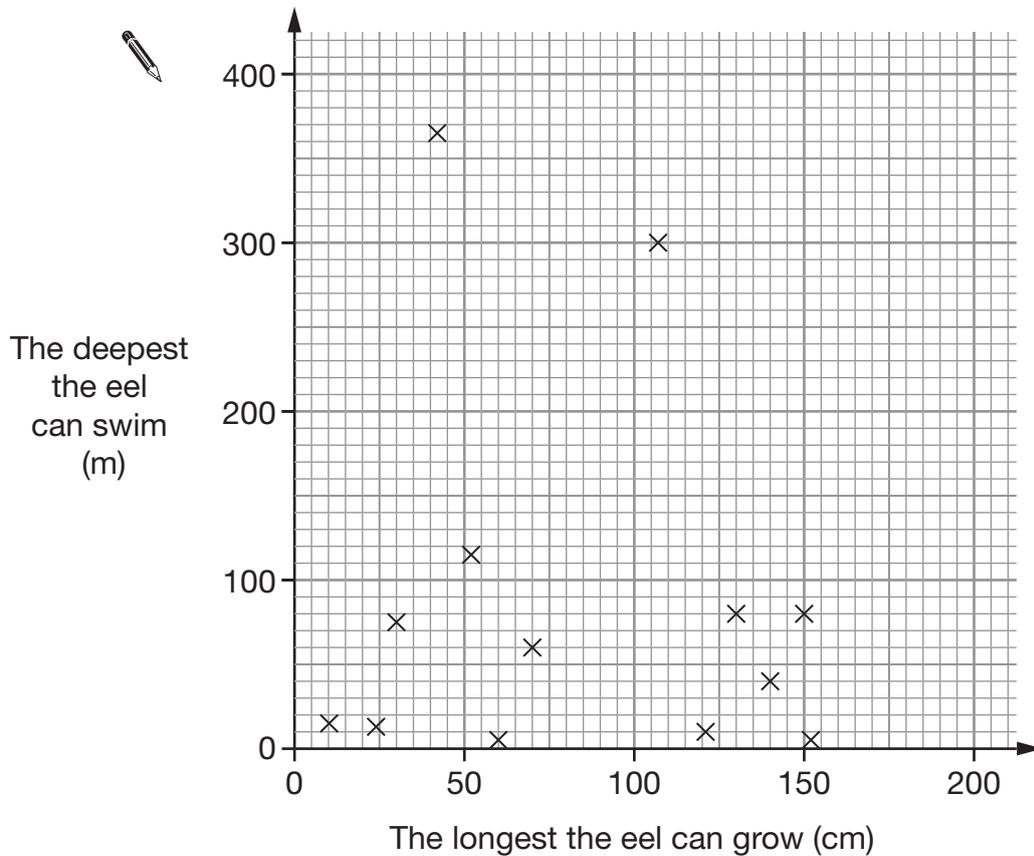Which website is **cheaper** and by how much?

Website _____ is cheaper by _____

2 marks

1 mark

102009_p2.35.indd   17   18/12/2009   11:53:48

17. The graph shows information about **13 different types** of eel that live in the sea.

Use the graph to answer these questions.

(a) One type of eel is called a goldentail moray.

The longest it can grow is **70 cm**.

The deepest it can swim is **60 m**.

Put a ring around the point on the graph that represents this eel.

1 mark

(b) How many of these different types of eel can swim **deeper than 100 m**?

1 mark

18.   A shop sells school uniform.

> Two shirts and one jumper cost **£29**
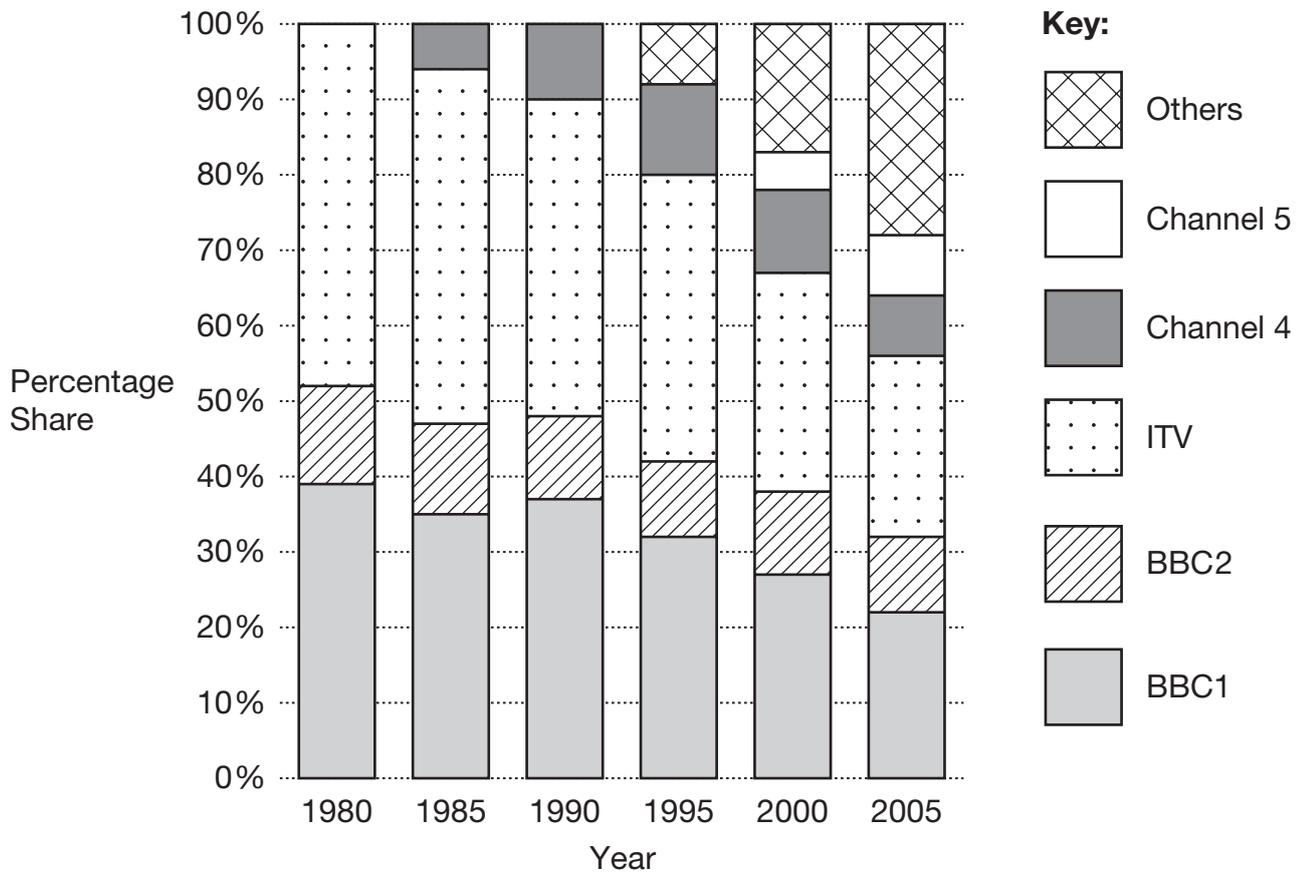>
> One shirt and one jumper cost **£21**

How much does **one jumper** cost?

£

19. The chart shows the popularity of different television channels.

Complete the missing information.

In **1980**, only three television channels were available. The most popular

was _____ .

In **2005**, the biggest percentage share is for _____ .

The percentage share for _____ remained **almost the same** at

about _____ % each year.

102009_p2.35.indd 20   14/01/2010 16:54:18

20.   A boat can be hired for children's parties.

Have your child's party
on our boat

The formula below shows the cost.

Cost = £13.50 × the number of children + £23

(a)   What is the cost of a party for **8 children**?
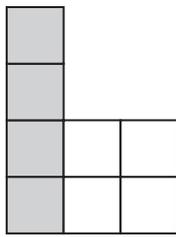
£

1 mark

(b)   A different children's party cost **£225.50**
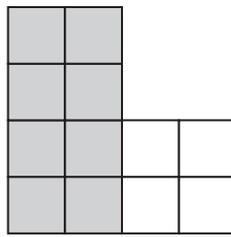
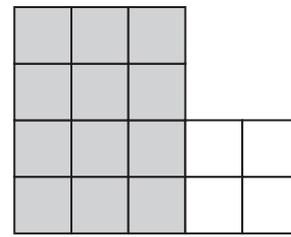How many children were at the party?

2 marks

102009_p2.35.indd   21   18/12/2009   11:53:50

21. I make a sequence of shapes using grey and white tiles.
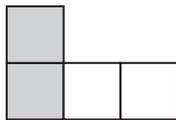

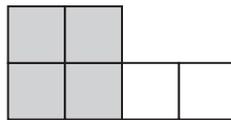| shape
number 1 | shape
number 2 | shape
number 3 |

The total number of tiles in shape number n is **$4n + 4$**

(a) I remove **half the tiles** to make the sequence of shapes below.

| shape
number 1 | shape
number 2 | shape
number 3 |

Complete the sentence.

The total number of tiles in shape number n is _____

1 mark

(b) Then I remove **half the tiles** again.

| shape
number 1 | shape
number 2 | shape
number 3 |

Complete the sentence.

The total number of tiles in shape number n is _____

1 mark

Y9/Ma/Tier 3–5/P2 22

102009_p2.35.indd   22   18/12/2009   11:53:51

22. People pay to visit a garden.

> **Tickets:**
>
> Age 16 and over   £3.60
>
> Under 16   £2.25

145 people pay.

39 of them are **under 16**

How much ticket money is paid altogether?

£ _____

23. The table shows information about six types of bird that can be seen in Britain.

The birds are listed in order of size from biggest to smallest.

Name of bird	Size of bird	When it can be seen		Average egg length
		Summer	**Winter**	
Mistle Thrush	Biggest	✓	✓	31 mm
Fieldfare			✓	29 mm
Blackbird		✓	✓	29 mm
Ring Ouzel		✓		30 mm
Song Thrush		✓	✓	27 mm
Redwing	Smallest		✓	26 mm

Use the table to answer these questions.

(a) What is the name of the **smallest** bird that can be seen in **summer**?

1 mark

102009_p2.35.indd 24   18/12/2009 11:53:51

(b)   Fred says:

In this table, the **bigger birds always have bigger egg lengths** than the smaller birds.
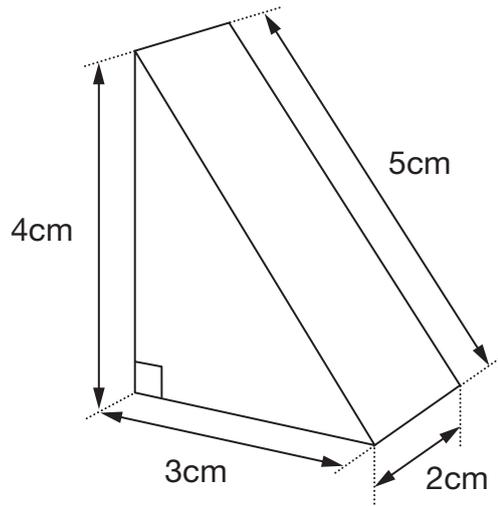
length

Is he correct?
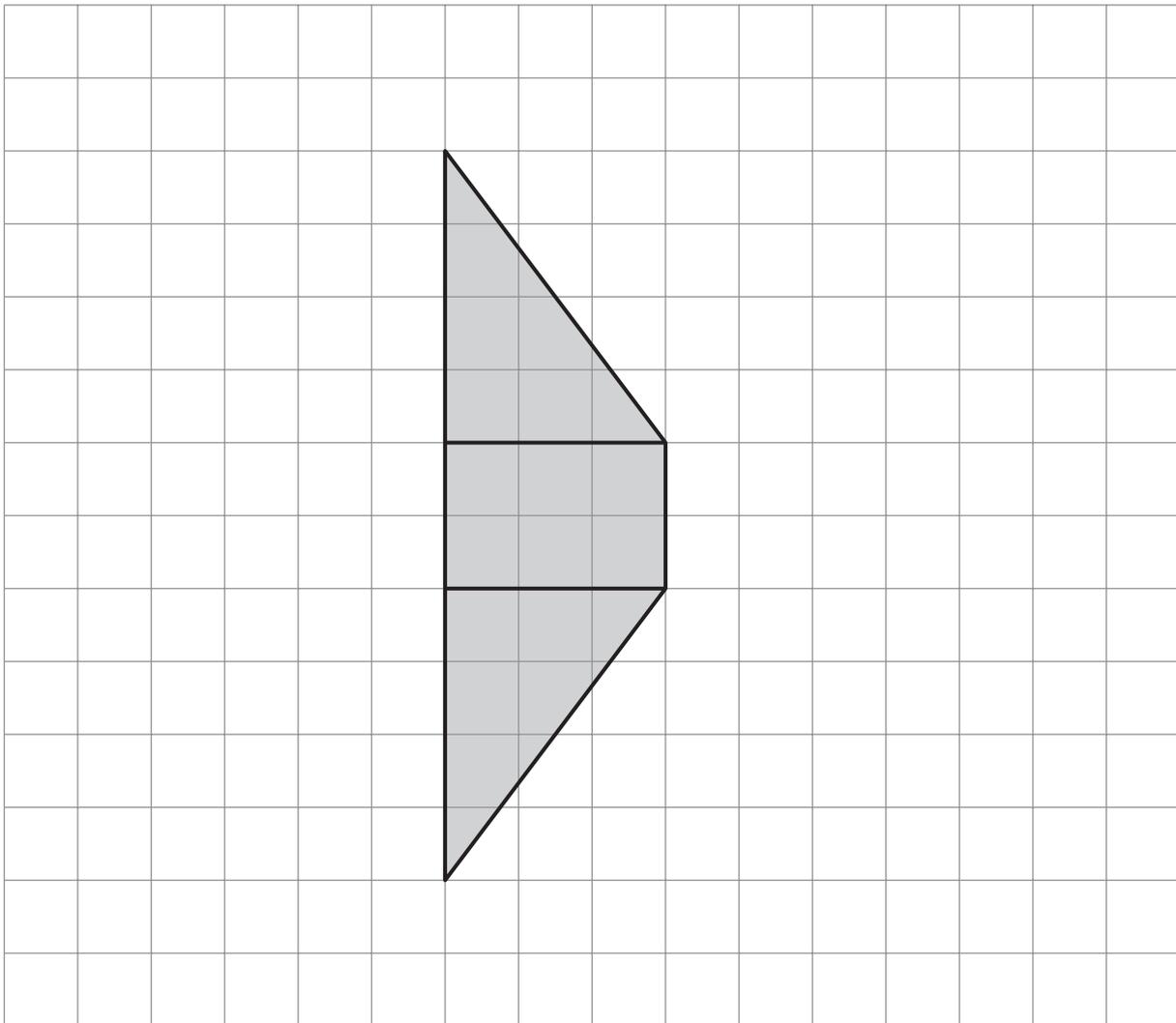
☐ Yes   ☐ No

Explain your answer.

102009_p2.35.indd   25   18/12/2009   11:53:52
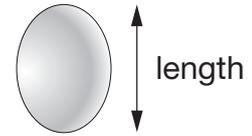
24.   The diagram shows a prism.

Not drawn accurately

5cm

4cm

3cm   2cm

The centimetre square grid below shows part of the net for the prism.

Complete the **net accurately**.

1 mark

1 mark

25. (a)   Dave says:

> 30 is the **only** multiple of 3 that ends in a zero.

Is he correct?

☐ Yes   ☐ No

Explain your answer.

(b)   Ali says:

> 30 is the **only** number that is divisible by both 5 and 2
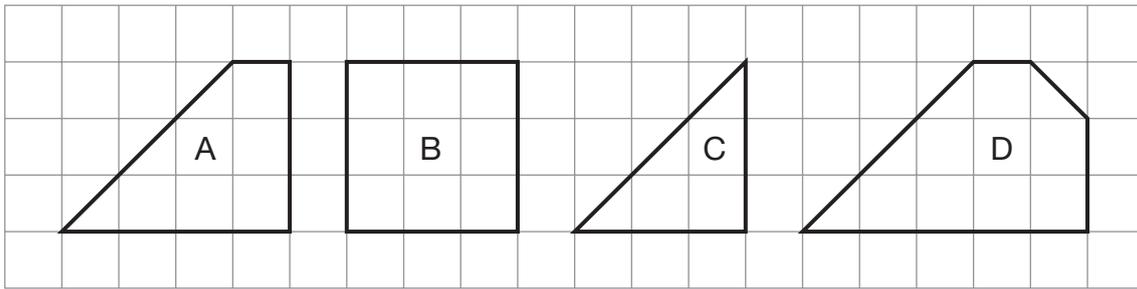
Is she correct?

☐ Yes   ☐ No

Explain your answer.

PLEASE TURN OVER

26. Each shape on this square grid has angles that are 45°, 90° or 135°

Complete the table.

	A	B	C	D
Number of 45° angles	1			
Number of 90° angles	2			
Number of 135° angles	1			

2 marks

27. (a) Write a number that is **bigger than** $5\frac{2}{3}$ but **smaller than 6**

1 mark

(b) Now write a number that is **bigger than 5.6** but **smaller than** $5\frac{2}{3}$

1 mark

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