**Ma**

# 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.

# 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.** 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

102009_p2.35.indd 3      18/12/2009 11:53:44

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

Th H T U

1214

Th H T U

142

2040

Th H T U

204

Th H T U

402
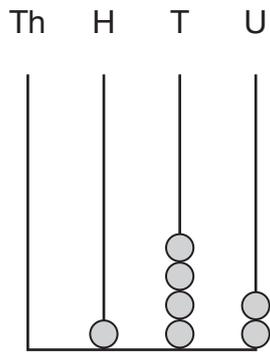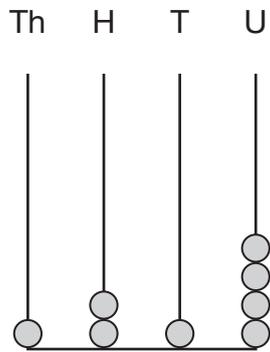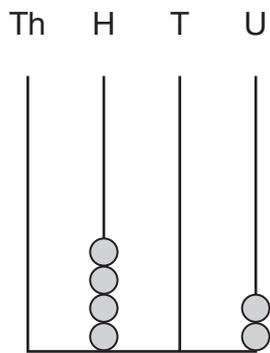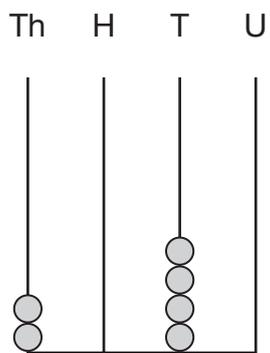
**3.** About 50 000 pupils answered the question:

What is your favourite subject at school?

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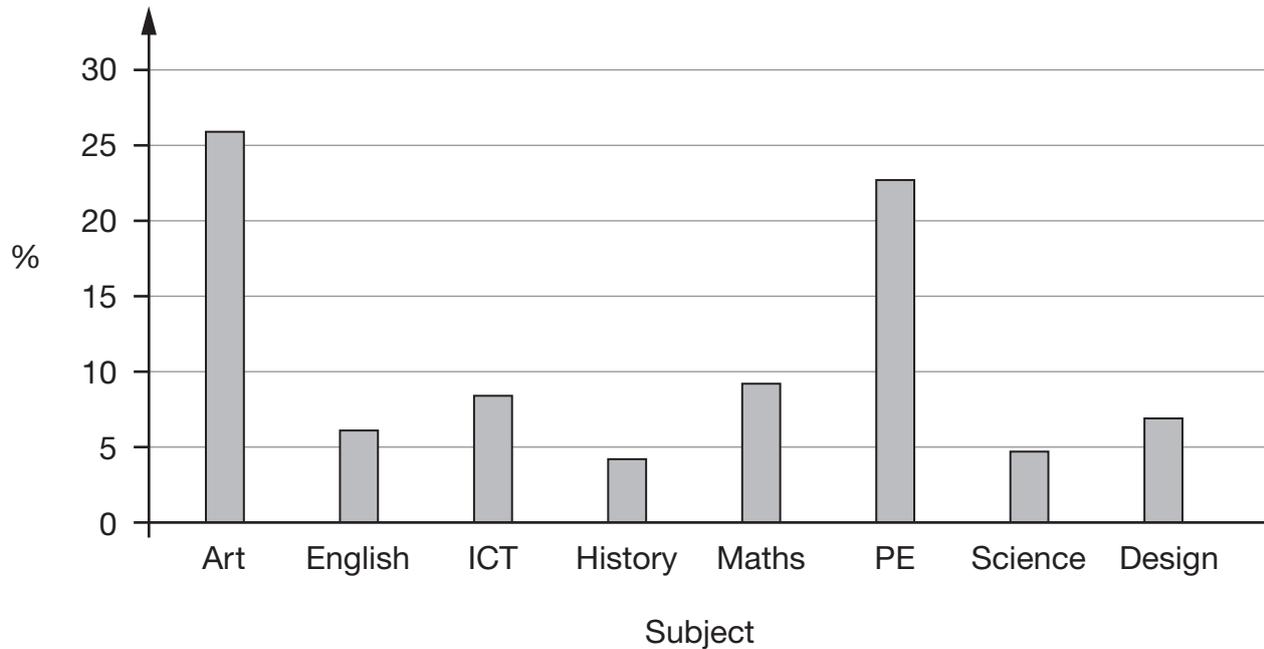


(a) The most popular subject was Art.

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.
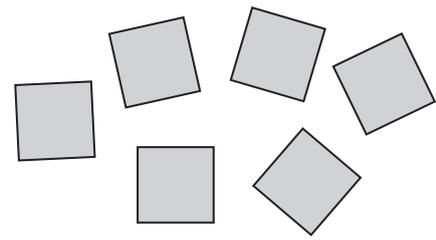
She joins the 6 tiles to make this rectangle.
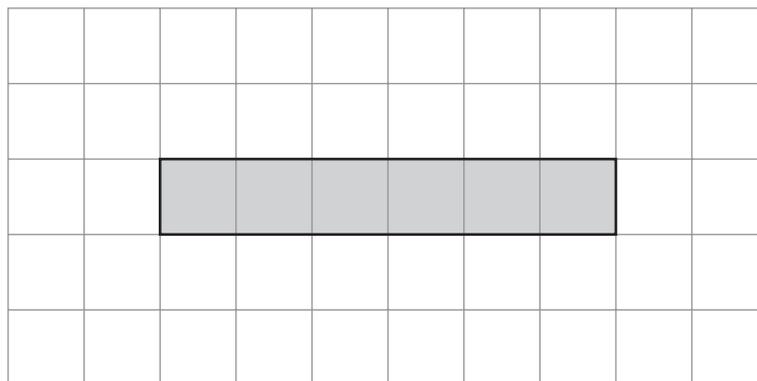
(a)  On the grid below, **draw a different** rectangle she could make using the 6 tiles.
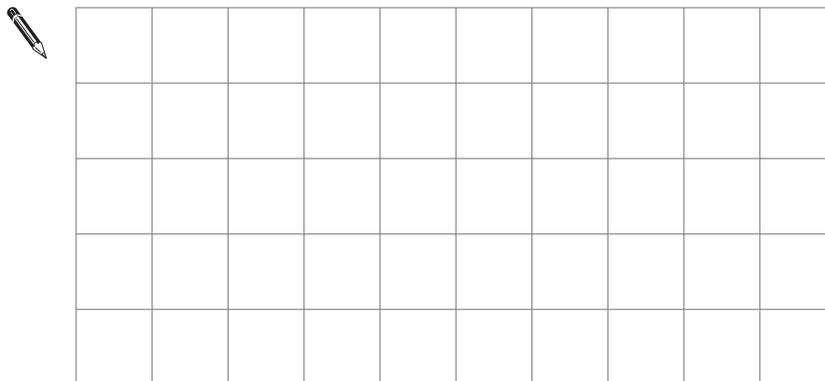
(b)  Stacey wants to make a **square** using **more than her 6 tiles**.

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

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

Each locker has a number.



4$^{th}$ row

3$^{rd}$ row

2$^{nd}$ row

1$^{st}$ row

You cannot see all the lockers.
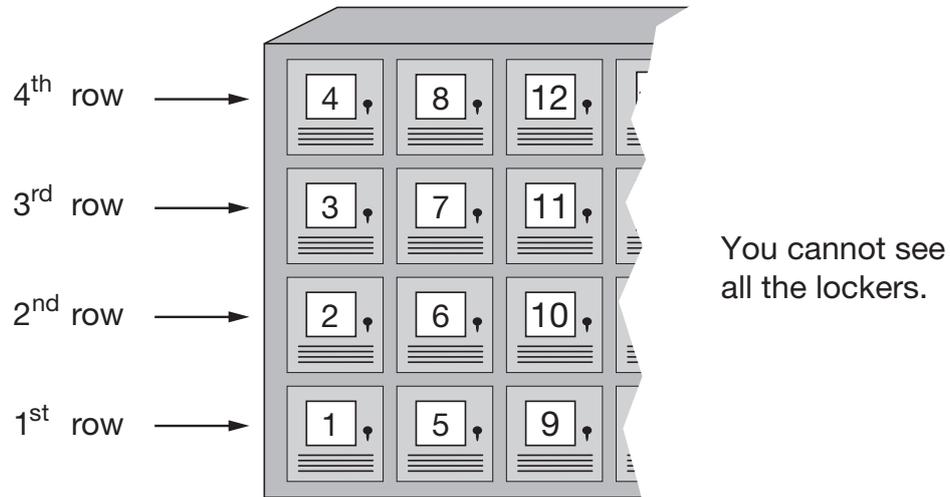
(a)    Locker number 5 is in the 1$^{st}$ row.

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

_____ row

1 mark

(b)    Jan's locker is in the **4$^{th}$ row**.

Jan says:

My locker number is **57**

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

1 mark

102009_p2.35.indd   8                                                    18/12/2009   11:53:46

**7.** (a)    I think of a number.

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

What is my number?

_____

(b)    I think of a different number.

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

The answer is **312**

What is my number?

_____

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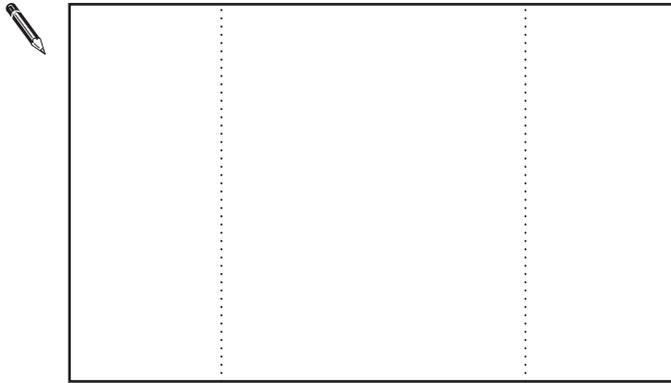
Inside this rectangle, **use a ruler** to draw a straight line.

The line must be exactly **5 cm** long and **cross one** dotted line.
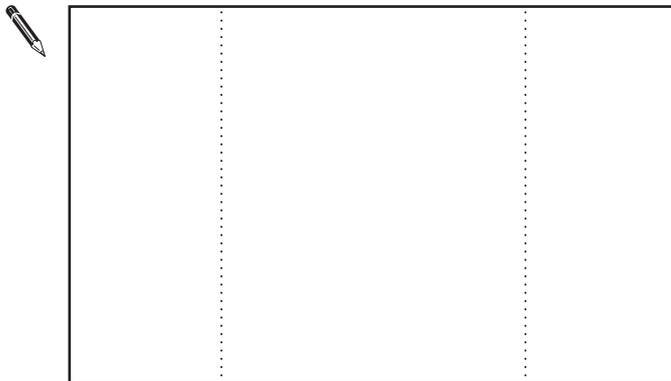
**11.**     Write the missing numbers.

$962 + \rule{2cm}{0.4pt} = 1898$

$\rule{2cm}{0.4pt} - 403 = 982$

$51 \times \rule{2cm}{0.4pt} = 2397$

$\rule{2cm}{0.4pt} \div 23 = 828$

**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

**13.** Write multiples to make these additions correct.

$$\boxed{12} + \boxed{\phantom{xx}} = \boxed{\phantom{xx}}$$

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

1 mark

$$\boxed{\phantom{xx}} + \boxed{\phantom{xx}} = \boxed{30}$$

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

1 mark

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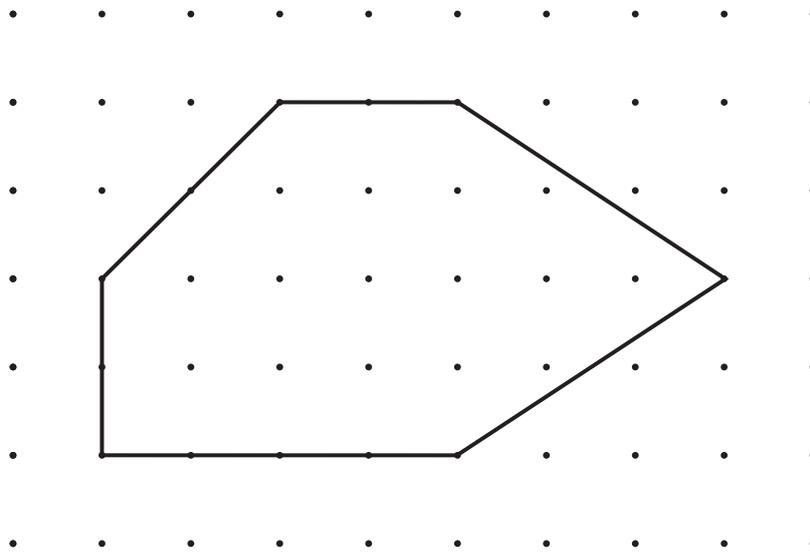
Here are some statements about the shape.

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.
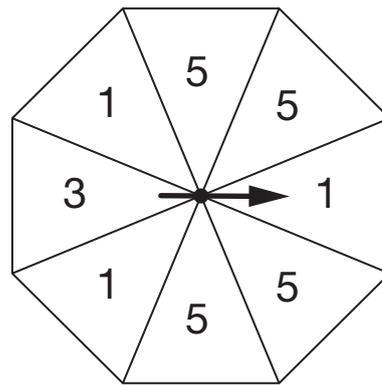
Draw lines to show how likely the following are.

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

102009_p2.35.indd   16                                              18/12/2009   11:53:48

**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

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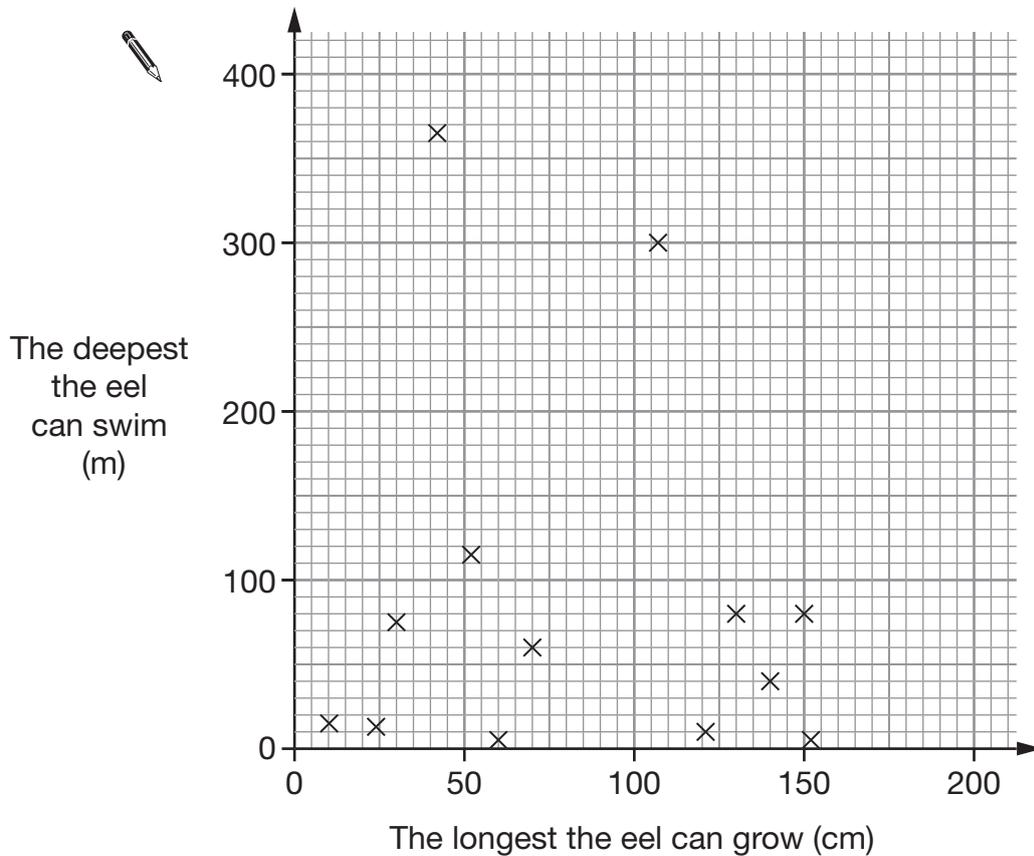


Use the graph to answer these questions.

(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?

£ 

2 marks

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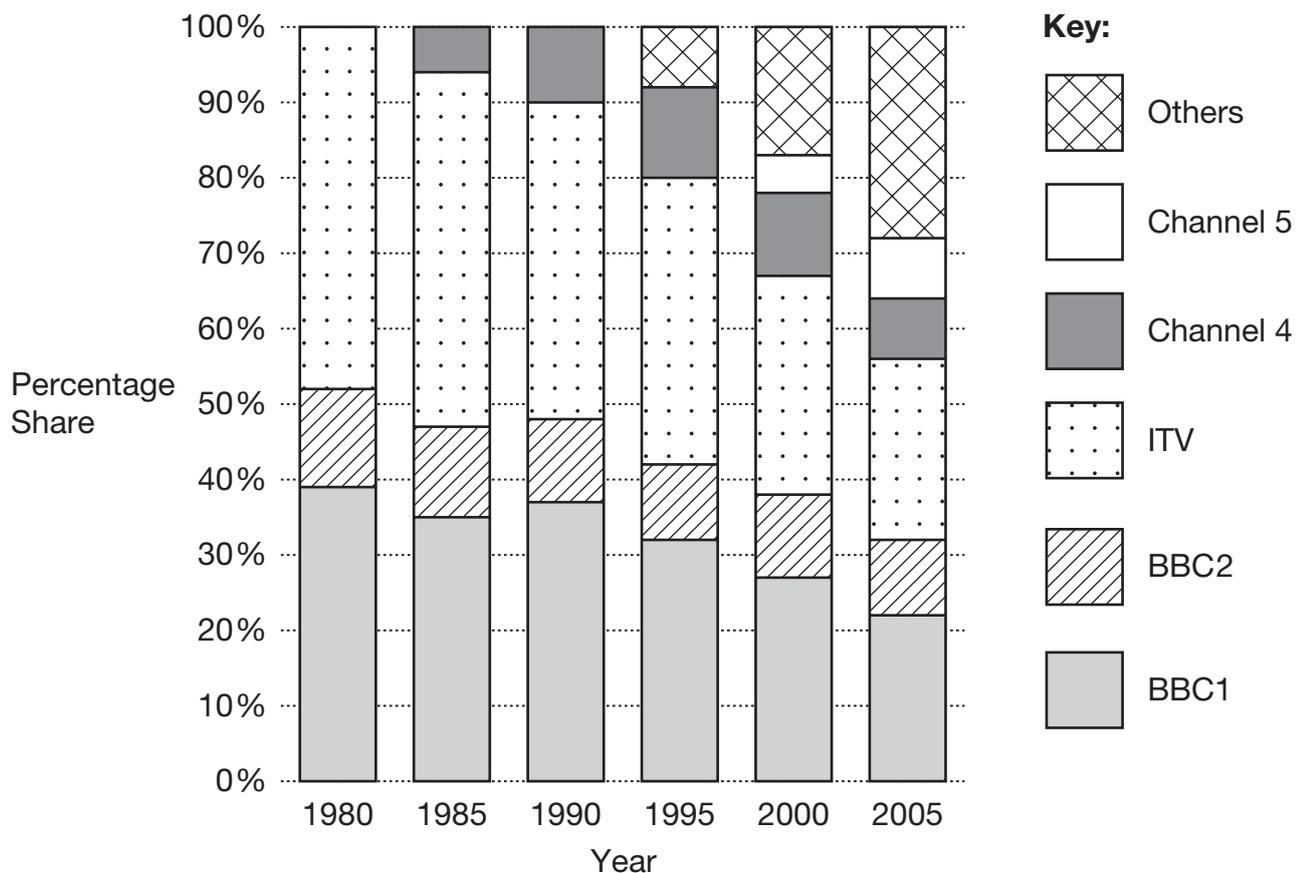


Complete the missing information.

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.

**20.**  A boat can be hired for children's parties.
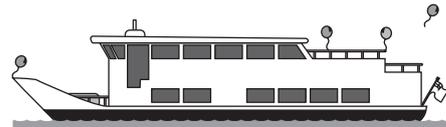
Have your child's party
on our boat

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**?

£

(b)  A different children's party cost **£225.50**

How many children were at the party?

21

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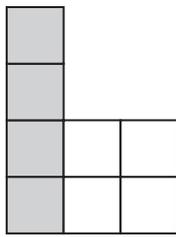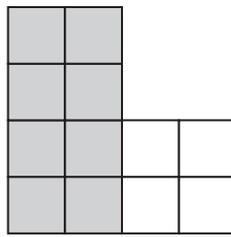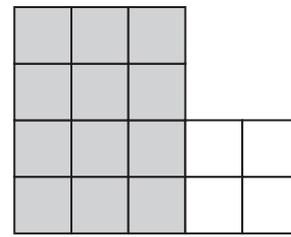


|  |  |  |
|---|---|---|
| shape number 1 | shape number 2 | shape number 3 |

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.
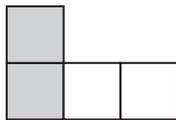


|  |  |  |
|---|---|---|
| shape number 1 | shape number 2 | shape number 3 |
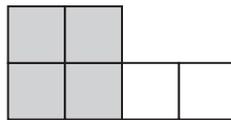
Complete the sentence.

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

**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?

£

2 marks

**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 | Smallest | ✓ | ✓ | 27 mm |
| Redwing | ↓ | | ✓ | 26 mm |
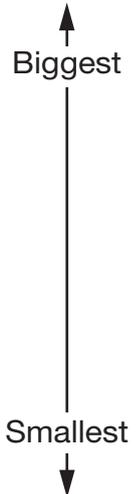
Use the table to answer these questions.

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

_____

1 mark

(b)   Fred says:

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

length
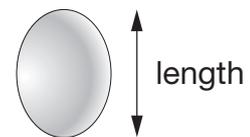
Is he correct?

☐ Yes          ☐ No

Explain your answer.

**24.** The diagram shows a prism.
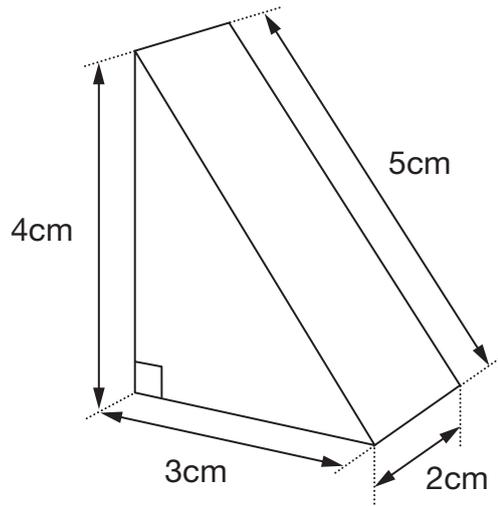
Not drawn accurately

4cm

5cm

3cm

2cm

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

Complete the **net accurately**.
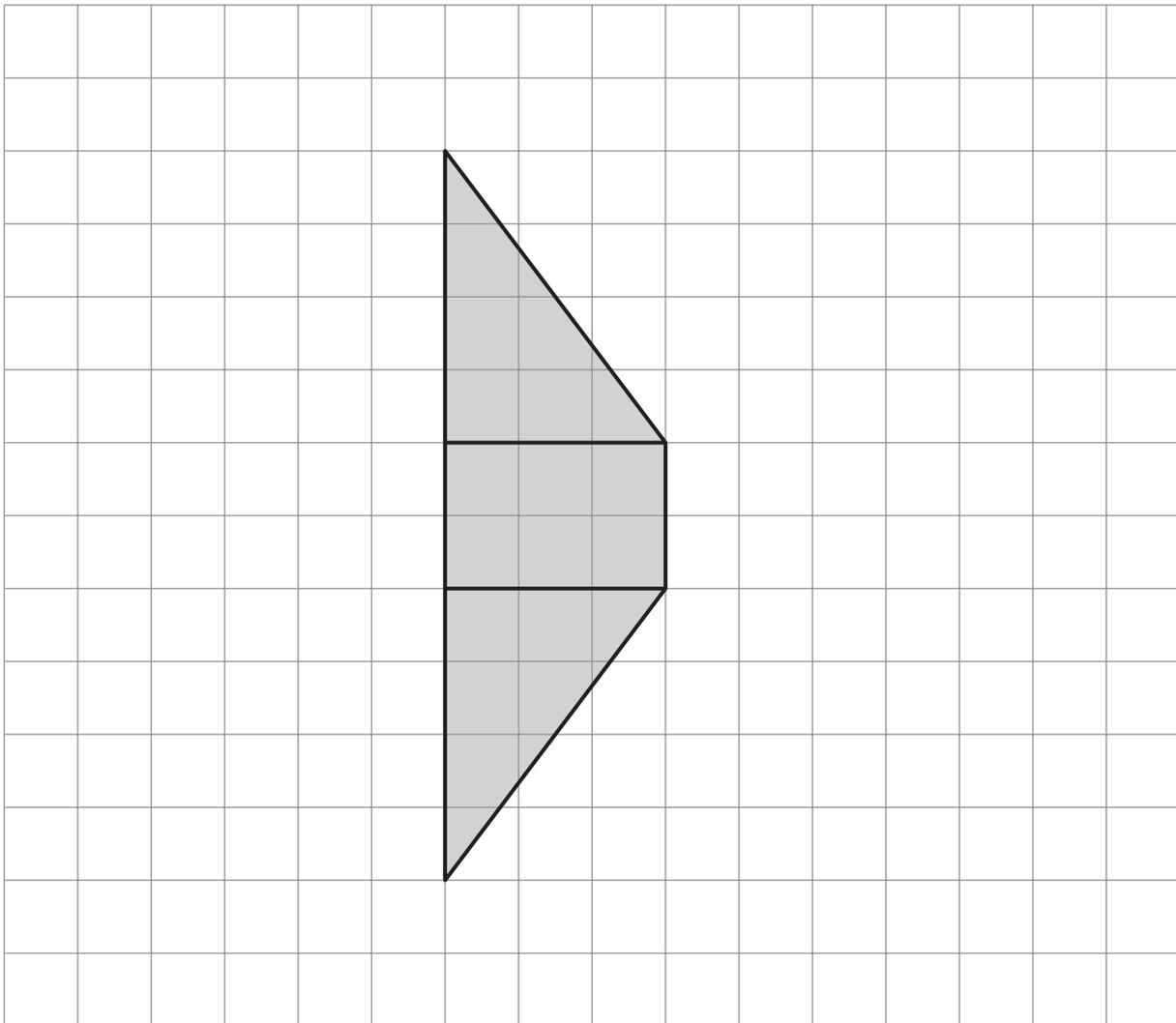


1 mark

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°
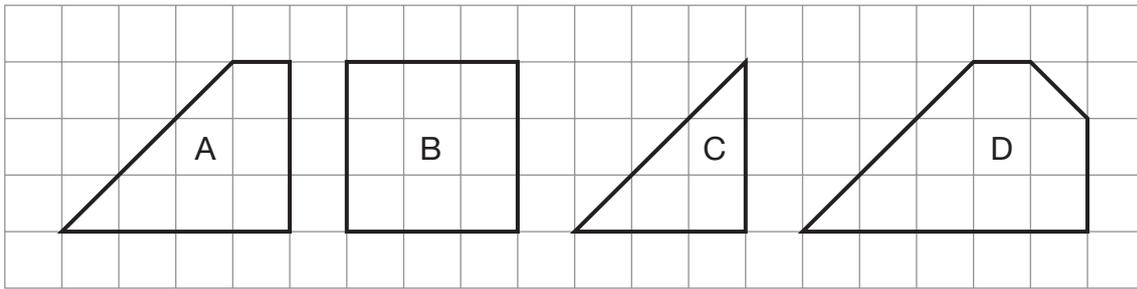


Complete the table.

|  | 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*