

## Year 6

### Using and applying mathematics

- Solve multi-step problems, and problems involving fractions, decimals and percentages; choose and use appropriate calculation strategies at each stage, including calculator use

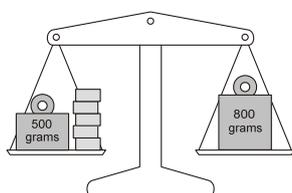
In a supermarket storeroom there are

- 7 boxes of tomato soup
- 5 boxes of pea soup
- 4 boxes of chicken soup

There are 24 tins in every box. How many tins of soup are there altogether?

**KS2 2004 Paper B level 4**

Lin has five blocks which are all the same. She balances them on the scale with two weights.



Calculate the weight of one block. Show your working.

**KS2 2006 Paper B level 4**

Emily, Ben and Nisha collect money for charity. Emily collects £2.75 more than Nisha. Ben collects £15. Nisha collects £7 less than Ben. Altogether how much money do the three children collect?

**KS2 2008 Paper B level 4**

A torch costs £7.65. Kate buys a torch and two batteries.



She pays £8.75 altogether. How much does one battery cost?

**KS2 2007 Paper A level 4**

Emily chose a number. She halved the number then added ten to the result. Her answer was thirty-five. What was the number she started with?

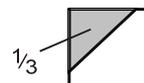
**KS2 2008 Mental test level 4**

A film starts at 6:45pm. It lasts 2 hours and 35 minutes.

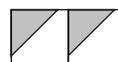
What time will the film finish?

**KS2 2004 Paper A level 4**

$\frac{1}{3}$  of this square is shaded.



The same square is used in the diagrams below. What fraction of this diagram is shaded?



What fraction of this diagram is shaded?

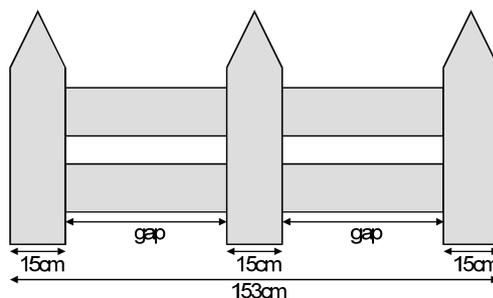


**KS2 2008 Paper A level 5**

Emily makes 250 grams of a snack mixture. 15% of the weight is raisins, 25% is banana chips and the rest is peanuts. How many grams of peanuts does she use?

**KS2 2008 Paper A level 5**

This fence has three posts, equally spaced.



Each post is 15 centimetres wide. The length of the fence is 153 centimetres. Calculate the length of one gap between two posts.

**KS2 2003 Paper B level 5**

Ben thinks of a number. He adds half of the number to a quarter of the number. The result is 60. What was the number Ben first thought of? Show your working.

**KS2 2008 Paper A level 5**

A box contains 220 matches and weighs 45 grams. The empty box weighs 12 grams. Calculate the weight of one match.

**KS2 2005 Paper B level 5**

- Tabulate systematically the information in a problem or puzzle; identify and record the steps or calculations needed to solve it, using symbols where appropriate; interpret solutions in the original context and check their accuracy

Five children have ticked this table to show on which days they are free to go out.

	Emma	David	Lin	Jack	Rosie
Mon		✓	✓		✓
Tue	✓		✓	✓	
Wed		✓			✓
Thu			✓	✓	✓
Fri	✓	✓			✓

On how many days are more than two children free to go out?

On which days are Lin and Rosie both free to go out together?

**KS2 2006 Paper A level 4**

□ and ○ each stand for a different number.

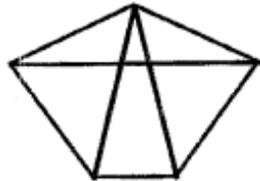
$$\square = 34$$

$$\square + \square = \circ + \circ + \square$$

What is the value of ○?

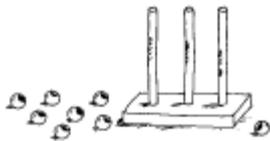
**Y4 optional test 2003 Paper B level 4**

How many triangles can you see in this diagram?



How can you make sure that you have counted them all?

Imagine you have 25 beads. You have to make a three-digit number on an abacus. You must use all 25 beads for each number you make.



How many different three-digit numbers can you make? Write them in order.

Here are five number cards.



A and B stand for two different whole numbers.

The sum of all the numbers on all five cards is 30.

What could be the values of A and B?

**KS2 2004 Paper B level 5**

Two whole numbers are each between 50 and 70.

They multiply to make 4095.

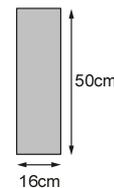
Write in the missing numbers.

$$\square \times \square = 4095$$

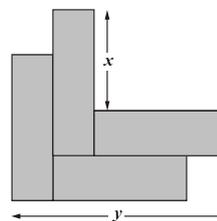
**KS2 2007 Paper B level 5**

Kate has some rectangles.

They each measure 16 centimetres by 50 centimetres.



She makes this design with four of the rectangles.



Work out the lengths  $x$  and  $y$ .

**KS2 2007 Paper B level 5**

Two boys and two girls can play tennis.



Ali said: 'I will only play if Holly plays.'

Holly said: 'I won't play if Ben is playing.'

Ben said: 'I won't play if Luke or Laura plays.'

Luke said: 'I will only play if Zoe plays.'

Zoe said: 'I don't mind who I play with.'

Which two boys and which two girls play tennis?

Find the remaining totals.

- Suggest, plan and develop lines of enquiry; collect, organise and represent information, interpret results and review methods; identify and answer related questions

Here are some digit cards.

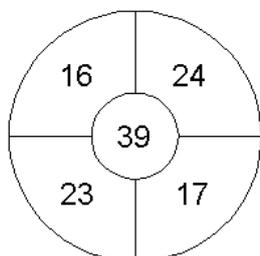


Write all the three-digit numbers, greater than 500, that can be made using these cards.

**KS2 2005 Paper A level 4**

Suggest two other problems you could solve by using the digit cards.

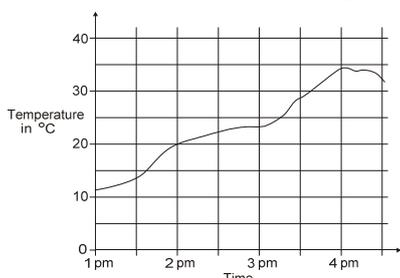
Jason threw some darts at this board. Every dart landed on the board.



Jason scored exactly 100. How many darts did he throw? Which numbers did they land on?

Write three more questions you could ask about the numbers on the dartboard.

This graph shows the temperature in a greenhouse.



Use the graph to find the time when the temperature was 25°C.

Use the graph to find the difference between the temperature at 2 pm and the temperature at 4 pm.

**KS2 2004 Paper A level 5**

Write down two more questions you could ask about the information shown in the graph.

Here is part of a train timetable.

Edinburgh	–	09:35	–	–	13:35	–	–
Glasgow	09:15	–	11:15	13:15	–	13:45	15:15
Stirling	09:57	–	11:57	13:57	–	14:29	15:57
Perth	10:34	10:51	12:34	14:34	14:50	15:15	16:35
Inverness	–	13:10	–	–	17:05	–	–

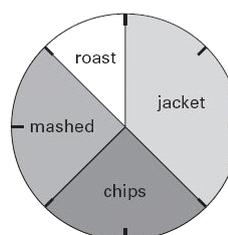
How long does the first train from Edinburgh take to travel to Inverness?

Ellen is at Glasgow station at 1.30pm. She wants to travel to Perth. She catches the next train. At what time will she arrive in Perth?

**KS2 2004 Paper A level 5**

Write down two more questions you could ask about the information shown in the timetable.

This pie chart shows how the 32 children in Class 6 best like their potatoes cooked.



Look at the four statements below. For each statement put a tick (✓) if it is correct. Put a cross (✗) if it is not correct.

- 10 children like chips best.
- 25% of the children like mashed potatoes best.
- $\frac{1}{5}$  of the children like roast potatoes best.
- 12 children like jacket potatoes best.

**KS2 2005 Paper A level 5**

Write down two different ways in which you could extend this survey.

- Represent and interpret sequences, patterns and relationships involving numbers and shapes; suggest and test hypotheses; construct and use simple expressions and formulae in words then symbols (e.g. the cost of  $c$  pens at 15 pence each is  $15c$  pence)

Here is a repeating pattern of shapes.  
Each shape is numbered.



The pattern continues in the same way. Write the numbers of the next two stars in the pattern.

Complete this sentence.

Shape number 35 will be a circle because ...

**KS2 2003 Paper A level 4**

The first two numbers in this sequence are 2.1 and 2.2. The sequence then follows the rule 'to get the next number, add the two previous numbers'.

Write in the next two numbers in the sequence.

2.1 2.2 4.3 6.5

**KS2 2003 Paper A level 4**

In this sequence each number is double the previous number. Write in the missing numbers.

3 6 12 24 48

**KS2 2003 Paper B level 4**

The numbers in this sequence increase by the same amount each time.

Write in the missing numbers.

1    13

**KS2 2006 Paper B level 4**

Here is a number sentence.

$$\square + 27 > 85$$

Circle all the numbers below that make the number sentence correct.

30 40 50 60 70

**KS2 2006 Paper B level 4**

and  each stand for a different number.

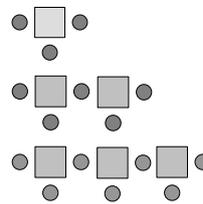
$$\square = 34$$

$$\square + \square = \square + \square + \square$$

What is the value of .

**Y4 optional test 2003 Paper B level 4**

Here is a sequence of patterns made from squares and circles.



Number of squares	Number of circles
1	3
2	5
3	7

The sequence continues in the same way. Calculate how many squares there will be in the pattern which has 25 circles.

**KS2 2001 Paper A level 5**

The rule for this sequence of numbers is 'add 3 each time'.

1.....4.....7.....10.....13.....16.....

The sequence continues in the same way.

Mary says, 'No matter how far you go there will never be a multiple of 3 in the sequence.'

Is she correct? Circle Yes or No.

Explain how you know

**KS2 2001 Paper B level 5**

$m$  stands for a whole number greater than 10 and less than 20.

$n$  stands for a whole number greater than 2 and less than 10.

What is the smallest number that  $m \times n$  could be?

What is the largest number that  $m - n$  could be?

**KS2 2008 Paper B level 5**

$k$  stands for a whole number.

$$k + 7 \text{ is greater than } 100.$$

$$k - 7 \text{ is less than } 90.$$

Find all the numbers that  $k$  could be.

**KS2 2006 Paper A level 5**

$p$  and  $q$  each stand for whole numbers.

$$p + q = 1000$$

$$p \text{ is } 150 \text{ greater than } q.$$

Calculate the numbers  $p$  and  $q$ .

**KS2 2001 Paper B level 5**

When  $m$  equals twenty, what is the value of ten plus three  $m$ ?

**KS2 2007 Mental test level 5**

• Explain reasoning and conclusions, using words, symbols or diagrams as appropriate

Nadia is working with whole numbers. She says, 'If you add a two-digit number to a two-digit number you cannot get a four-digit number.'

Is she correct? Circle Yes or No.  
Explain why.

**KS2 2000 Paper B level 4**

Mr Singh buys paving slabs to go around his pond.



He buys 4 rectangular slabs and 4 square slabs.  
What is the total cost of the slabs he buys?

'It would cost more to use square slabs all the way round.' Explain why he is correct.

**KS2 2002 Paper A level 4**

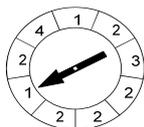
Write one number which fits all three of these statements.

- It is a multiple of 4.
- It is a multiple of 6.
- It ends in '8'.

Explain why a number which ends in '3' cannot be a multiple of 4.

**KS2 2007 Paper A level 4**

The spinner is divided into nine equal sections.



Which two different numbers on the spinner are equally likely to come up?

Meera says, '2 has a greater than even chance of coming up'. Explain why she is correct.

**KS2 2000 Paper A level 4**

Sapna makes up a game using seven cards.  
Here are the cards.



Josh picks a card without looking.

If Josh picks an odd number then Sapna scores a point. If Josh picks an even number then Josh scores a point.

Is this a fair game?

Circle Yes or No. Explain how you know.

**KS2 2005 Paper A level 4**

Julie says, 'I added three odd numbers and my answer was 50.'

Explain why Julie cannot be correct.

**KS2 2004 Paper A level 5**

The numbers in this sequence increase by 7 each time.

1      8      15      22      29      ....

The sequence continues in the same way.

Will the number 777 be in the sequence?

Circle Yes or No.

Explain how you know.

**KS2 2008 Paper A level 5**

Jamie draws a triangle. He says,

'Two of the three angles in my triangle are obtuse.'

Explain why Jamie cannot be correct.

**KS2 2007 Paper A level 5**

Which is larger,  $\frac{1}{3}$  or  $\frac{2}{5}$ ?

Explain how you know.

**KS2 2002 Paper A level 5**

6 green apples cost 75p.

10 red apples cost 90p.

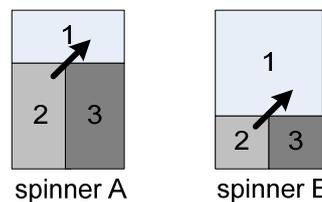
Jason bought some bags of green apples and some bags of red apples. He spent £4.20. How many bags of each type of apples did he buy?

Nika says, 'I bought more apples than Hassan, but I spent less money.'

Explain how this is possible.

**KS2 2002 Paper A level 5**

Katie made two spinners, A and B.



She says, 'Scoring a 1 on spinner A is just as likely as scoring a 1 on spinner B'.

Explain why Katie is correct.

**KS2 2000 Paper B level 5**

## Counting and understanding number

- Find the difference between a positive and a negative integer, or two negative integers, in context

The temperatures were:

inside	outside
$-1^{\circ}\text{C}$	$-8^{\circ}\text{C}$

What is the difference between these two temperatures?

**KS2 2002 Paper B level 4**

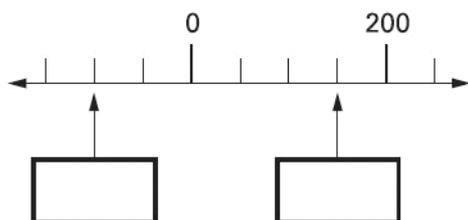
The temperature inside an aeroplane is  $20^{\circ}\text{C}$ .  
 The temperature outside the aeroplane is  $-30^{\circ}\text{C}$ .  
 What is the difference between these temperatures?

**KS2 2003 Paper B level 4**

The temperature in York is  $4^{\circ}\text{C}$ .  
 Rome is 7 degrees colder than York.  
 What is the temperature in Rome?

**KS2 2000 Paper A level 4**

Here is part of a number line.  
 Write the missing numbers in the boxes.



**Y5 optional test 2003 Paper A level 4**

What temperature is ten degrees lower than seven degrees Celsius?

**KS2 2006 Mental test level 4**

Circle two numbers which have a difference of 2

$-1$     $-0.5$     $0$     $0.5$     $1$     $1.5$

**KS2 2001 Paper B level 4**

What temperature is twenty degrees lower than six degrees Celsius?

**KS2 2004 Mental test level 5**

A sequence starts at 500 and 80 is subtracted each time.

500   420   340 ...

The sequence continues in the same way.

Write the first two numbers in the sequence which are less than zero.

**KS2 2002 Paper A level 5**

• Use decimal notation for tenths, hundredths and thousandths; partition, round and order decimals with up to three places, and position them on the number line

In the number 5.375, what does the digit 7 represent?

- A  $\frac{7}{1000}$     B  $\frac{7}{100}$     C  $\frac{7}{10}$     D 7

What number is exactly halfway between one point one and one point two?

**KS2 2005 Mental test level 4**

Write a number that is bigger than nought point three but smaller than nought point four.

**KS2 2003 Mental test level 4**

Put a ring around the smallest number.

- 0.27    0.207    0.027    2.07    2.7

**KS2 2001 Mental test level 4**

Circle all the numbers that are greater than 0.6.

- 0.5    0.8    0.23    0.09    0.67

**KS2 2007 Paper A level 4**

Round each decimal to the nearest whole number.

6.01 →

9.51 →

7.75 →

**Y5 optional test 2003 Paper B level 4**

Write these numbers in order of size, starting with the smallest.

3.01    13.0    0.31    1.30    3.1

smallest

**KS2 2007 Paper B level 4**

Here are three supermarket bills.

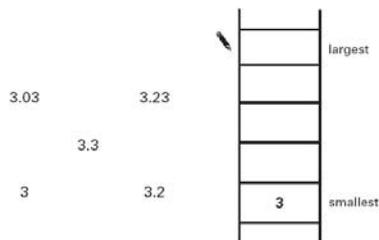


Tom rounds each bill to the nearest £10 and adds them up. What is the total amount that Tom gets?

Mary adds up the three bills exactly. What is the total difference between her total and Tom's total?

**KS2 2004 Paper B level 4**

Write these numbers in order. One has been done for you.



**Y5 optional test 2003 Paper A level 5**

Divide nought point nine by one hundred.

**KS2 2006 Mental test level 5**

Write the answer to each of these calculations rounded to the nearest whole number.

One has been done for you.

	To the nearest whole number
$75.7 \times 59$	4466
$7734 \div 60$	
$772.4 \times 9.7$	
$20.34 \times (7.9 - 5.4)$	

**KS2 2006 Paper B level 5**

Circle the number closest in value to 0.1.

- 0.01    0.05    0.11    0.2    0.9

**KS2 2002 Paper B level 5**

- 7.4    8.1    9.4    10

Which two of these numbers, when multiplied together, have the answer closest to 70?

**KS2 2005 Paper B level 5**

Here are five calculations.

- A  $720 \div 64$   
B  $820 \div 75$   
C  $920 \div 80$   
D  $1020 \div 90$   
E  $1120 \div 100$

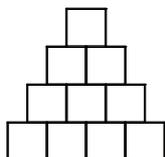
Write the letter of the calculation that has the greatest answer.

Write the letter of the calculation that has an answer closest to 11.

**KS2 2009 Paper B level 5**

- Express a larger whole number as a fraction of a smaller one (e. g. recognise that 8 slices of a 5-slice pizza represents  $\frac{8}{5}$  or  $1\frac{3}{5}$  pizzas); simplify fractions by cancelling common factors; order a set of fractions by converting them to fractions with a common denominator

Shade  $\frac{1}{5}$  of this shape.



KS2 2008 Paper B level 4

Here is a chocolate bar.



William eats 3 pieces and Amber eats 2 pieces.  
What fraction of the chocolate bar remains?

Y5 optional test 2003 Paper A level 4

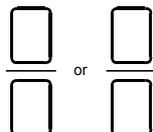
Sophie poured some water out of a litre jug.  
Look how much is left in the jug.  
Estimate how many millilitres of water are left.



Y5 optional test 2003 Paper A level 4

Karen makes a fraction using two number cards.  
She says, 'My fraction is equivalent to  $\frac{1}{2}$ . One of the number cards is 6'

What could Karen's fraction be?  
Give both possible answers.

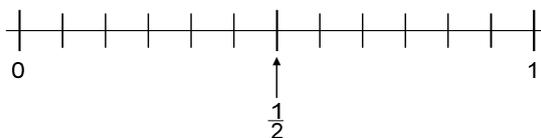


KS2 2003 Paper B level 4

Look at these fractions.

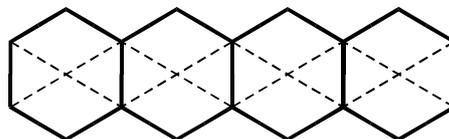
$$\frac{1}{2} \quad \frac{1}{3} \quad \frac{5}{6}$$

Mark each fraction on the number line.  
The first one is done for you.



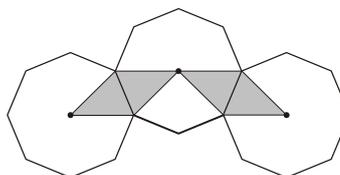
KS2 2001 level 4

This diagram shows four regular hexagons.  
Shade in one third of the diagram.



KS2 2003 Paper B level 5

The diagram shows three regular octagons joined together.  
There is a dot at the centre of each one.



What fraction of the diagram is shaded?

KS2 2007 Paper B level 5

What fraction of two pounds is twenty pence?

KS2 2006 Mental test level 5

Make each fraction equivalent to  $\frac{3}{5}$ .

$$\frac{\square}{10}$$

$$\frac{\square}{15}$$

$$\frac{12}{\square}$$

KS2 2001 Paper A level 5

Write these fractions in order of size starting with the smallest.

$$\frac{3}{4}$$

$$\frac{3}{5}$$

$$\frac{9}{10}$$

$$\frac{17}{20}$$



smallest

KS2 2005 Paper A level 5

Which is larger,  $\frac{1}{3}$  or  $\frac{2}{5}$ ?

Explain how you know.

KS2 2002 Paper A level 5

• Express one quantity as a percentage of another (e.g. express £400 as a percentage of £1000); find equivalent percentages, decimals and fractions

What is seven-tenths as a percentage?

**KS2 2005 Mental test level 4**

What is twenty out of forty as a percentage?

**KS2 2004 Mental test level 4**

Put a ring around the percentage that is equal to three-fifths.

20%    30%    40%    50%    60%

**KS2 2007 Mental test level 4**

Hassan scores 40 out of 80 in a test.  
 Kate scores 40% in the same test.

Who has the higher score?  
 Circle Hassan or Kate.  
 Explain how you know.

**KS2 2007 Paper B level 4**

Circle the two fractions that are equivalent to 0.6.

$\frac{6}{10}$      $\frac{1}{60}$      $\frac{60}{100}$      $\frac{1}{6}$

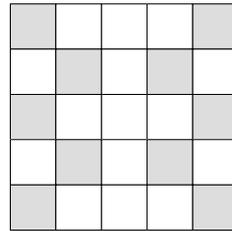
**Y5 optional test 2003 Paper B level 4**

Match each decimal number to its equivalent fraction. One has been done for you.

0.25	$\frac{3}{4}$
0.4	$\frac{2}{10}$
0.75	$\frac{1}{4}$
0.2	$\frac{2}{5}$

**KS2 2006 Paper A level 4**

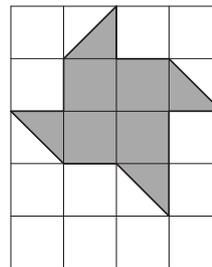
Here is a pattern on a grid.



What percentage of the grid is shaded?

**KS2 2006 Paper B level 5**

Here is a grid of 20 squares.



What percentage of the grid is shaded?

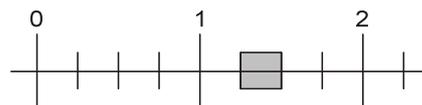
**KS2 2009 Paper B level 5**

Put a ring around the decimal which is equal to one-fifth.

0.1    0.2    0.3    0.4    0.5

**KS2 2003 Mental test level 5**

Part of this number line is shaded.



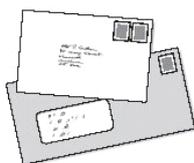
Circle all the numbers below that belong in the shaded part of the number line.

1.1    1.4     $1\frac{1}{3}$      $1\frac{1}{5}$

**KS2 2007 Paper A level 5**

• Solve simple problems involving direct proportion by scaling quantities up or down

Two letters have a total weight of 120 grams



One letter weighs twice as much as the other.  
 Write the weight of the heavier letter.

**Y4 optional test 2003 Paper B level 4**

Four biscuits cost twenty pence altogether.  
 How much do twelve biscuits cost?

**KS2 2005 Mental test level 4**

Two rulers cost eighty pence.  
 How much do three rulers cost?

**KS2 2005 Mental test level 4**

Cakes are four for fifty pence.  
 How many cakes will I get for two pounds?

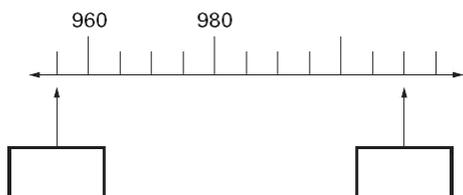
**KS2 2008 Mental test level 4**

Peanuts cost 60p for 100 grams.  
 What is the cost of 350 grams of peanuts?

Raisins cost 80p for 100 grams.  
 Jack pays £2 for a bag of raisins.  
 How many grams of raisins does he get?

**KS2 2000 Paper A level 4**

Here is part of a number line. Write the two missing numbers in the boxes.



**KS2 2005 Paper A level 4**

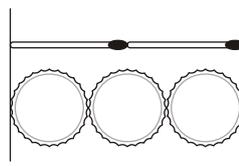
Six cakes cost one pound eighty.  
 How much do ten cakes cost?

**KS2 2002 Mental test level 5**

One book costs one pound ninety-five pence.  
 How much do six books cost?

**KS2 2006 Mental test level 5**

Two matchsticks have the same length as three bottle tops.



How many bottle tops will have the same length as 50 matchsticks?

**KS2 2007 Paper A level 5**

Here is a recipe for fruit smoothies.

<b>Recipe</b>
10 strawberries
$\frac{1}{2}$ litre orange juice
250 ml yogurt
1 banana
Makes two smoothies

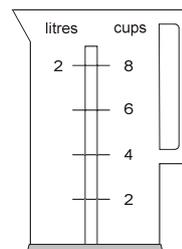
Stefan uses the recipe to make smoothies.  
 He uses 1 litre of yogurt.  
 How many strawberries does he use?

Amir uses the same recipe.  
 He wants to make 5 smoothies.  
 He has 1 litre of orange juice.

How many more millilitres of orange juice does he need?

**KS2 2009 Paper B level 5**

Nisha's kettle holds 2 litres of water.



How many millilitres are equal to 1 cup?

**KS2 2008 Paper A level 5**

David and his friends prepare a picnic.  
 Each person at the picnic will get:

- 3 sandwiches
- 2 bananas
- 1 packet of crisps

The children pack 45 sandwiches.  
 How many bananas do they pack?

**KS2 2006 Paper B level 5**

## Knowing and using number facts

- Use knowledge of place value and multiplication facts to  $10 \times 10$  to derive related multiplication and division facts involving decimals (e.g.  $0.8 \times 7$ ,  $4.8 \div 6$ )

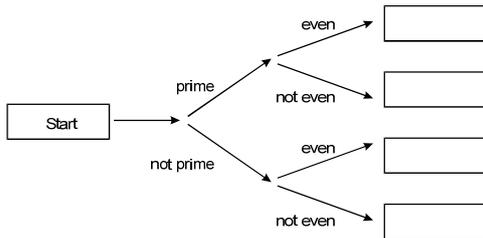
What is nought point four multiplied by nine?	Divide four point eight by eight.
What is nought point three multiplied by four?	Divide four point two by six.
What is four multiplied by nought point nine?	What number multiplied by six equals four point eight?
Multiply seven by nought point six.	Divide four point two by seven.
What is nought point eight multiplied by six?	What must you multiply nought point seven by to get two point one?
Multiply nought point seven by nine.	

- Use knowledge of multiplication facts to derive quickly squares of numbers to  $12 \times 12$  and the corresponding squares of multiples of 10

<p>17 multiplied by itself gives a 3-digit answer.</p> $\begin{array}{ c c } \hline 1 & 7 \\ \hline \end{array} \times \begin{array}{ c c } \hline 1 & 7 \\ \hline \end{array} = \begin{array}{ c c c } \hline 2 & 8 & 9 \\ \hline \end{array}$ <p>What is the smallest 2-digit number that can be multiplied by itself to give a 4-digit answer?</p> $\begin{array}{ c c } \hline & \\ \hline \end{array} \times \begin{array}{ c c } \hline & \\ \hline \end{array} = \begin{array}{ c c c c } \hline & & & \\ \hline \end{array}$ <p><b>KS2 2005 Paper B level 4</b></p> <hr/> <p>Here is a sorting diagram for numbers. Write a number less than 100 in each space.</p> <table border="1"> <thead> <tr> <th></th> <th>even</th> <th>not even</th> </tr> </thead> <tbody> <tr> <th>a square number</th> <td></td> <td></td> </tr> <tr> <th>not a square number</th> <td></td> <td></td> </tr> </tbody> </table> <p><b>KS2 2004 Paper A level 4</b></p>		even	not even	a square number			not a square number			<p>Find two square numbers that total 45.</p> $\square + \square = 45$ <p><b>KS2 2005 Paper A level 5</b></p> <hr/> <p>Lara chooses a square number. She rounds it to the nearest hundred. Her answer is 200. Write all the possible square numbers Lara could have chosen.</p> <p><b>KS2 2009 Paper A level 5</b></p>
	even	not even								
a square number										
not a square number										

• Recognise that prime numbers have only two factors and identify prime numbers less than 100; find the prime factors of two-digit numbers

Here is a diagram for sorting numbers.



Write these three numbers in the correct boxes. You may not need to use all of the boxes.

9      17      20

KS2 2001 Paper A level 4

Write the three prime numbers which multiply to make 231.

$$\square \times \square \times \square = 231$$

KS2 2001 Paper B level 5

Circle the two prime numbers.

29    39    49    59    69

KS2 2006 Paper B level 5

Write all the numbers between 50 and 100 that are factors of 180.

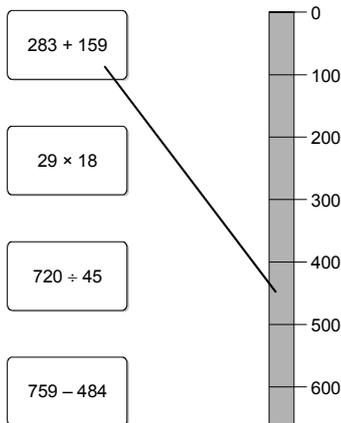
KS2 2009 Paper A level 5

Write one prime number that is between twenty and thirty.

KS2 2009 Mental test level 5

• Use approximations, inverse operations and tests of divisibility to estimate and check results

Draw a line from each card to the correct part of the number line. One has been done for you. You may use a calculator.



KS2 2002 Paper B level 3

Write in the missing number.

$$32.45 \div \square = 253.11$$

KS2 2002 Paper B level 4

Mark's patio has 84 rows of square tiles. There are 57 tiles in each row.

Which of these is the BEST way to estimate how many tiles there are altogether?

- A  $100 \times 50 = 5000$
- B  $90 \times 60 = 5400$
- C  $80 \times 60 = 4800$
- D  $80 \times 50 = 4000$

Estimate the value of nine point two multiplied by two point nine.

[oral question]

Circle the best estimate of the answer to

$$72.34 \div 8.91$$

6    7    8    9    10    11

This sequence of numbers goes up by 40 each time.

40    80    120    160    200    ...

This sequence continues.

Will the number 2140 be in the sequence?

Circle Yes or No.

Explain how you know.

KS2 2000 Paper A level 5

Write in the missing number.

$$50 \div \square = 2.5$$

KS2 2003 Paper A level 5

## Calculating

- Calculate mentally with integers and decimals:  $U.t \pm U.t$ ,  $TU \times U$ ,  $TU \div U$ ,  $U.t \times U$ ,  $U.t \div U$

What number is halfway between thirty and eighty?

**KS2 2004 Mental test level 4**

What is the sum of eight point five and eight point six?

**KS2 2002 Mental test level 4**

Subtract one point nine from two point seven.

**KS2 2003 Mental test level 4**

Subtract nought point one from two.

**KS2 2007 Mental test level 4**

Add together nought point two, nought point four and nought point six.

**KS2 2005 Mental test level 4**

What is four multiplied by three point five?

**KS2 2000 Mental test level 4**

A packet of crisps costs thirty-two pence. Josh buys three packets. How much change does he get from one pound?

**KS2 2005 Mental test level 4**

Two rulers cost eighty pence. How much do three rulers cost?

**KS2 2002 Mental test level 4**

Circle two numbers which add to make 0.12.

0.1   0.5   0.05   0.7   0.07   0.2

**KS2 2000 Paper A level 4**

Tick (✓) the two numbers which have a total of 10.

0.01

0.11

1.01

9.09

9.9

9.99

**KS2 2005 Paper A level 4**

What is twelve multiplied by twenty-five?

**KS2 2007 Mental test level 4**

Divide six hundred by twenty-five.

**KS2 2009 Mental test level 5**

What is six multiplied by twenty divided by four?

**KS2 2007 Mental test level 4**

How many sevens are there in six hundred and thirty?

**KS2 2008 Mental test level 4**

What number is one hundred less than ten thousand?

**KS2 2006 Mental test level 5**

When a number is divided by seven, the answer is three remainder four. What is the number?

**KS2 2007 Mental test level 5**

A bag of four oranges costs thirty seven pence. How much do twelve oranges cost?

**KS2 2000 Mental test level 5**

In a group of forty-five children, there are twice as many boys as girls. How many girls are there?

**KS2 2006 Mental test level 5**

Two metres of wire cost ninety pence. How much will three metres of wire cost?

**KS2 2007 Mental test level 5**

Three pens cost one pound fifty pence altogether. How much would seven pens cost?

**KS2 2008 Mental test level 5**

Write the multiple of eight that is between one hundred and one hundred and ten.

**KS2 2007 Mental test level 5**

What is thirty-one point nine subtract twenty-one point four?

**KS2 2008 Mental test level 5**

Subtract nought point nought five from nought point five.

**KS2 2008 Mental test level 5**

- Use efficient written methods to add and subtract integers and decimals, to multiply and divide integers and decimals by a one-digit integer, and to multiply two-digit and three-digit integers by a two-digit integer

Calculate  $123 \div 5$ .

Calculate  $16.5 \div 3$ .

Calculate  $27.6 \div 8$ .

Calculate  $2307 \times 8$ .

KS2 2003 Paper A level 4

Write in the missing digits.

$$4 \square 4 + 38 \square = 851$$

KS2 2004 Paper A level 4

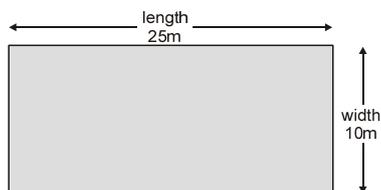
Calculate  $45.3 \times 6$

KS2 2008 Paper A level 4

Calculate  $417 \times 20$

KS2 2002 Paper A level 4

A rectangular swimming pool is 25 metres long and 10 metres wide.



David swims 5 lengths.

Rosie swims 12 widths.

How much further does David swim than Rosie?

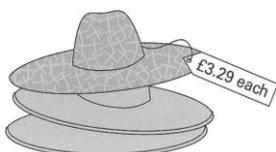
KS2 2006 Paper A level 4

A shop sells three types of sunglasses.



What is the difference in price between the most expensive and least expensive sunglasses?

The shop also sells sun hats.



Ryan buys the £4.69 sunglasses and a sun hat.

How much change does he get from £10?

KS2 2004 Paper A level 4

Calculate  $15.05 - 14.84$ .

KS2 2002 Paper A level 5

Calculate  $52.85 + 143.6$ .

KS2 2006 Paper A level 5

Calculate  $8.6 - 3.75$ .

KS2 2000 paper A level 5

Calculate  $31.6 \times 7$ .

KS2 2004 Paper A level 5

Calculate  $602 \times 57$ .

KS2 2009 Paper A level 5

Calculate  $504 \div 21$ .

KS2 2007 Paper A level 5

Calculate  $848 \div 16$ .

KS2 2006 Paper A level 5

A shop sells notebooks and pens.

Hassan bought a notebook and a pen.

He paid £1.10.

Kate bought a notebook and 2 pens.

She paid £1.45.

Calculate the cost of a notebook.

KS2 2007 Paper A level 5

Liam thinks of a number.

He multiplies the number by 5 and then subtracts 60 from the result.

His answer equals the number he started with.

What was the number Liam started with?

KS2 2004 Paper A level 5

A packet contains 1.5 kilograms of guinea pig food.

Remi feeds her guinea pig 30 grams of food each day.



How many days does the packet of food last?

KS2 2003 Paper A level 5

- Relate fractions to multiplication and division (e.g.  $6 \div 2 = \frac{1}{2}$  of  $6 = 6 \times \frac{1}{2}$ ); express a quotient as a fraction or decimal (e.g.  $67 \div 5 = 13.4$  or  $13\frac{2}{5}$ ); find fractions and percentages of whole-number quantities (e.g.  $\frac{5}{8}$  of 96, 65% of £260)

Add together two and a half and three and a half and four and a half.

**KS2 2006 Mental test level 4**

What is three-quarters of two hundred?

**KS2 2000 Mental test level 4**

What is three-quarters of forty-four?

**KS2 2008 Mental test level 5**

Nine is half of a number.

What is one-third of the number?

**KS2 2009 Mental test level 5**

What is one-fifth of one thousand?

**KS2 2007 Mental test level 5**

Three-quarters of a number is 48.

What is the number?

**KS2 2003 Paper A level 5**

Joe has some pocket money.

He spends three-quarters of it.

He has fifty pence left.

How much pocket money did he have?

**Y5 optional test 2003 Mental test level 4**

Calculate  $\frac{3}{4}$  of 840.

**KS2 2000 Paper A level 4**

Calculate  $\frac{5}{12}$  of 378.

**KS2 2001 Paper B level 5**

Calculate  $\frac{3}{8}$  of 980.

**KS2 2003 Paper B level 5**

What is two percent of three hundred?

**KS2 2000 Mental test level 5**

What is five percent of one thousand?

**KS2 2008 Mental test level 5**

What is ninety-nine per cent of two hundred?

**KS2 2002 Mental test level 5**

Calculate 5% of £3600.

**KS2 2004 Paper A level 5**

Calculate 15% of 460.

**KS2 2001 Paper A level 5**

Calculate 60% of 765.

**KS2 2000 Paper B level 5**

Write in the missing numbers.

30% of 60 is

30% of  is 60

**KS2 2005 Paper B level 5**

Emily makes 250 grams of a snack mixture.

15% of the weight is raisins, 25% is banana chips and the rest is peanuts.

How many grams of peanuts does she use?

**KS2 2008 Paper A level 5**

250 000 people visited a theme park in one year.

15% of the people visited in April and 40% of the people visited in August. How many people visited the park in the rest of the year?

**KS2 2003 Paper B level 5**

• Use a calculator to solve problems involving multi-step calculations

Use the digits 2, 3 and 4 once to make the multiplication that has the greatest product.

$$\square\square = \square$$

KS2 2004 Paper B level 4

185 people go to the school concert.  
 They pay £1.35 each.  
 How much ticket money is collected?

Programmes cost 15p each.  
 Selling programmes raises £12.30.  
 How many programmes are sold?

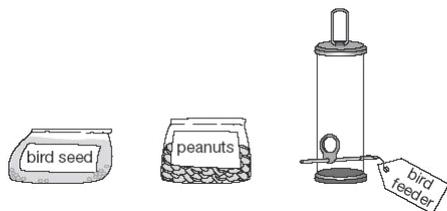
KS2 2002 Paper B level 4

Forest School sells badges for charity.  
 For each badge sold, £1.20 is given to a charity.  
 How much does the charity get when 12 badges are sold?

If the charity got £24, how many badges were sold?

KS2 2006 Paper B level 4

A shop sells food for birds.



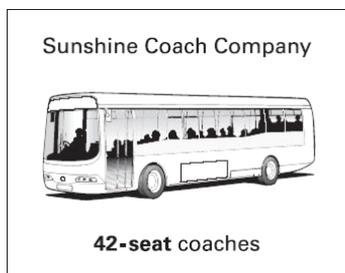
£3.79 for  
 a bag

£1.35 for  
 a bag

£8.95  
 each

Lara has £10 to spend on peanuts.  
 How many bags of peanuts can she get for £10?  
 Amir has £20. He wants to buy a bird-feeder and 4  
 bags of bird seed.  
 How much more money does he need?

KS2 2009 Paper B level 4



272 children and 26 adults from Hill School go on a  
 coach trip.  
 How many 42-seat coaches does the school need to  
 hire?

Y5 Optional test 2003 Paper B level 4

How much less than 1000 is  $9.7 \times 9.8 \times 9.9$ ?

KS2 2008 Paper B level 5

Calculate:

$$1.2 \times (1.3 + 1.4) \times 1.5$$

KS2 2007 Paper B level 5

Find the multiple of 45 that is closest to 8000.

KS2 2008 Paper B level 5

Two whole numbers are each between 50 and 70.  
 They multiply to make 4095.  
 Write in the missing numbers.

$$\square \times \square = 4095$$

KS2 2007 Paper B level 5

Write in the missing numbers.

$$\square \div 21.7 = 37.5$$

$$100 - (22.75 + 19.08) = \square$$

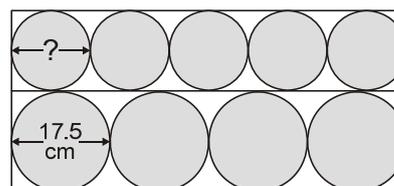
KS2 2004 Paper B level 5



Emily has £5 to spend on peaches. She decides to  
 buy only small peaches or only large peaches.  
 How many more small peaches than large peaches  
 can she buy for £5?

KS2 2008 Paper B level 5

Four large circles and five small circles fit exactly  
 inside this rectangle.



Not actual size

The diameter of a large circle is 17.5 centimetres.  
 Calculate the diameter of a small circle.

KS2 2006 Paper B level 5

The cost for using a minibus is £1.36 for each  
 kilometre.

8 friends go on a 114 kilometre journey.  
 They share the cost equally.

How much does each person pay?

KS2 2007 Paper B level 5

## Understanding shape

- Describe, identify and visualise parallel and perpendicular edges or faces; use these properties to classify 2-D shapes and 3-D solids

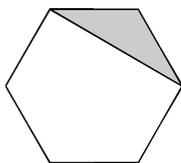
Imagine a square-based pyramid.  
 How many vertices does it have?

**KS2 2007 Mental test level 4**

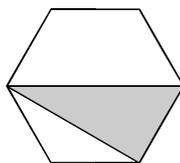
Imagine a cube.  
 How many vertices does it have?

**KS2 2000 Mental test level 4**

These two shaded triangles are each inside a regular hexagon. Under each hexagon, put a ring around the correct name of the shaded triangle.



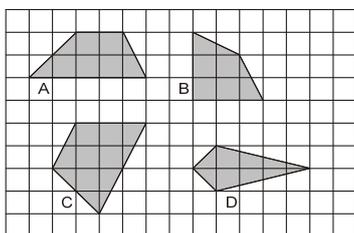
equilateral  
 isosceles  
 scalene



equilateral  
 isosceles  
 scalene

**KS2 2001 Paper B level 4**

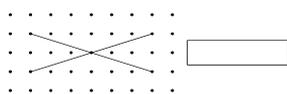
Here are some shapes on a grid.

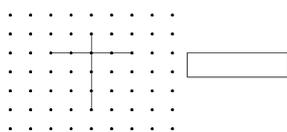


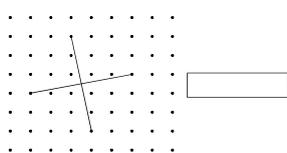
Write the letter of each shape that has one pair of parallel sides.

**KS2 2007 Paper A level 4**

These diagrams show the diagonals of three quadrilaterals. Write the names of the quadrilaterals in the boxes.





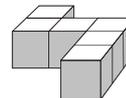



**KS2 2003 Paper A level 4**

How many edges has a triangular prism?

**Y5 Optional test 2003 Mental test level 5**

Emily has 6 cubes.  
 She sticks them together to make this model.

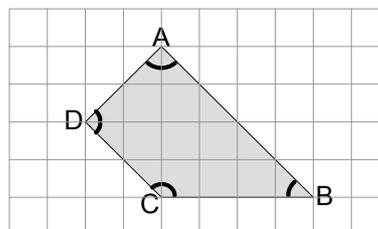


She paints the sides of the model grey all the way round. She leaves the top and the bottom of the model white.

How many of the cubes in the model have exactly two faces painted grey?

**KS2 2008 Paper A level 4**

Here is a shape on a square grid.



For each sentence, put a tick (✓) if it is true. Put a cross (✗) if it is not true.

- Angle C is an obtuse angle.
- Angle D is an acute angle.
- Line AD is parallel to line BC.
- Line AB is perpendicular to line AD.

**KS2 2000 Paper B level 5**

Here are four statements.

For each statement put a tick (✓) if it is possible. Put a cross (✗) if it is impossible.

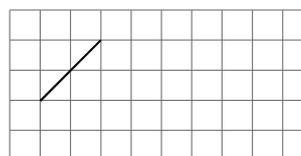
- A triangle can have 2 acute angles.
- A triangle can have 2 obtuse angles.
- A triangle can have 2 parallel sides.
- A triangle can have 2 perpendicular sides.

**KS2 2005 Paper A level 5**

This is a centimetre grid.

Draw 3 more lines to make a parallelogram with an area of 10 cm<sup>2</sup>.

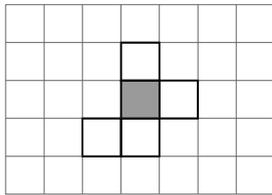
Use a ruler.



**KS2 2001 Paper A level 5**

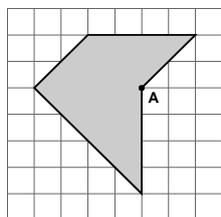
• Make and draw shapes with increasing accuracy and apply knowledge of their properties

Here is the net of a cube with no top.  
 The shaded square shows the bottom of the cube.  
 Draw an extra square to make the net of a cube which does have a top.



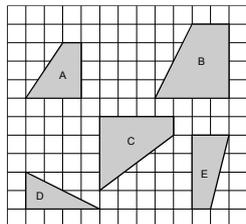
KS2 2003 Paper B level 4

Draw two straight lines from point A to divide the shaded shape into a square and two triangles.



KS2 2003 Paper B level 4

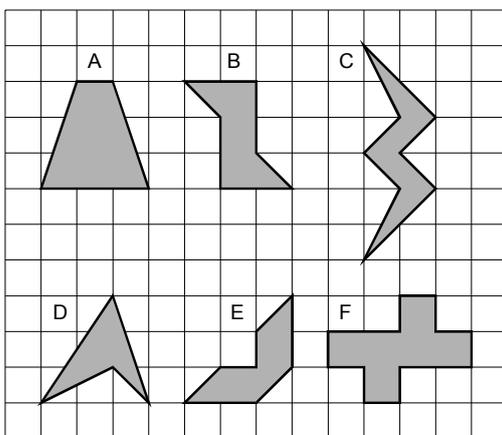
Here are five shapes on a square grid.



Which two shapes fit together to make a square?

KS2 2001 Paper B level 4

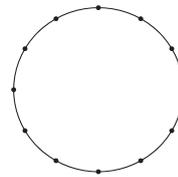
Here are some shaded shapes on a grid.



Which three shapes have reflective symmetry?

KS2 2000 Paper A level 4

The twelve points on this circle are equally spaced.  
 Join four points to make a square. Use a ruler.

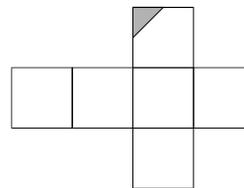


KS2 2009 Paper B level 4

A cube has shaded triangles on three of its faces.

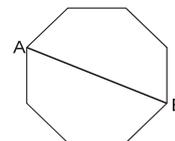


Here is the net of the cube. Draw in the two missing shaded triangles.

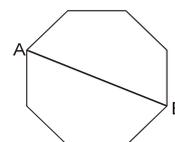


KS2 2002 Paper B level 5

Here is a regular octagon with two vertices joined to make the line AB. Join two other vertices to draw one line that is parallel to the line AB.

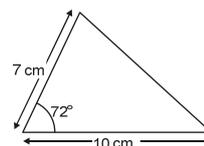


Here is the octagon again. Join two vertices to draw one line that is perpendicular to the line AB.

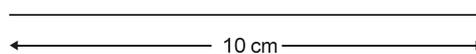


KS2 2008 Paper B level 5

Here is a sketch of a triangle.  
 It is not drawn to scale



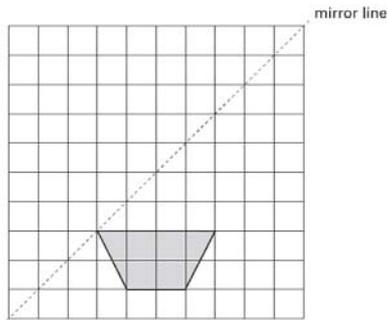
Draw the full-size triangle accurately below.  
 Use a protractor (angle measurer) and a ruler.  
 One line has been drawn for you.



KS2 2006 Paper A level 5

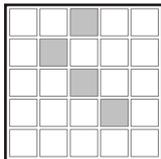
- Visualise and draw on grids of different types where a shape will be after reflection, after translations, or after rotation through  $90^\circ$  or  $180^\circ$  about its centre or one of its vertices

Draw the reflection of this shape.

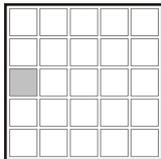


Y3 optional test 2003 Paper B level 4

Ben makes this design on a grid.



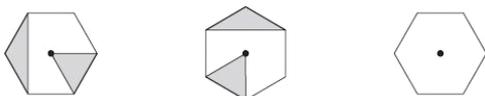
He rotates the grid to a new position. Shade in the missing parts of the design.



KS2 2008 Paper B level 4

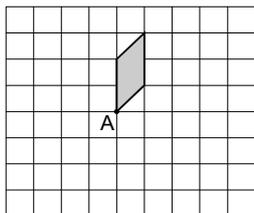
This pattern is made by turning a shape clockwise through  $90^\circ$  each time.

Draw the two missing triangles on the last shape.



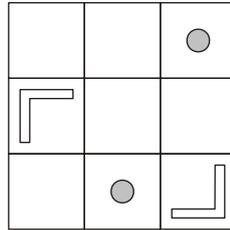
KS2 2005 Paper B level 4

Here is a shaded shape on a grid. The shape is rotated  $90^\circ$  clockwise about point A. Draw the shape in its new position on the grid. You may use tracing paper.

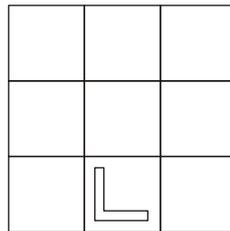


KS2 2000 Paper B level 4

There are four shapes on this diagram.



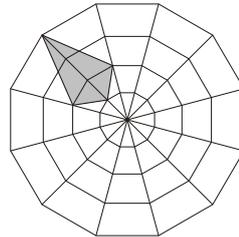
The diagram is turned to the new position below. Draw the three missing shapes.



KS2 2006 Paper A level 4

Here is a shaded shape on a grid. Jamie rotates the shape  $90^\circ$  clockwise about the centre of the grid.

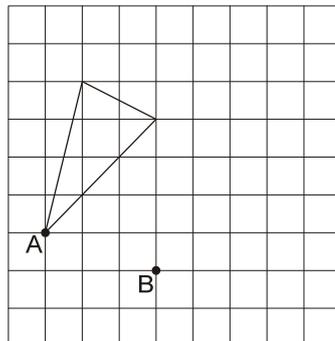
Draw the shaded shape in its new position.



KS2 2007 Paper B level 5

Here is a triangle on a square grid. The triangle is translated so that point A moves to point B.

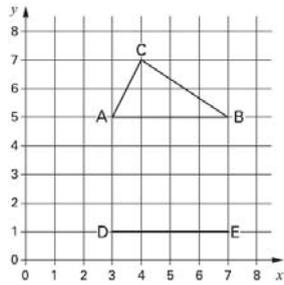
Draw the triangle in its new position. Use a ruler.



KS2 2006 Paper B level 5

• Use coordinates in the first quadrant to draw, locate and complete shapes that meet given properties

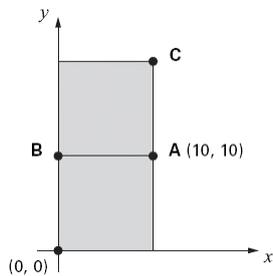
Kyle has drawn triangle ABC on this grid.



Holly has started to draw an identical triangle DEF. What will be the coordinates of point F?

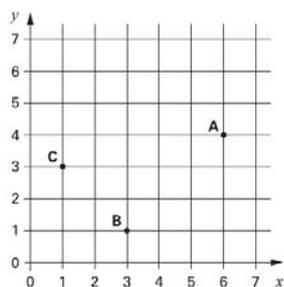
**Y5 optional test 2003 Paper B level 4**

The diagram shows two identical squares.



A is the point (10, 10). What are the coordinates of B and C?

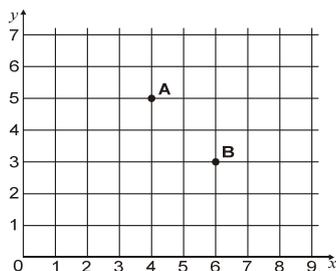
**KS2 2005 Paper B level 4**



A, B and C are three corners of a rectangle. What are the coordinates of the fourth corner?

**Y4 optional test 2003 Paper B level 4**

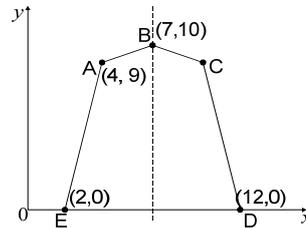
A, B, C and D are the vertices of a rectangle. A and B are shown on the grid.



D is the point (3, 4). Write the coordinates of point C.

**KS2 2006 Paper B level 4**

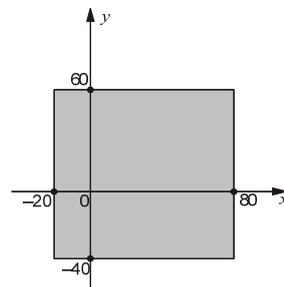
Here is a pentagon drawn on a coordinate grid. The pentagon is symmetrical.



What are the coordinates of point C?

**KS2 2003 Paper A level 5**

Here is a shaded square on x and y axes.

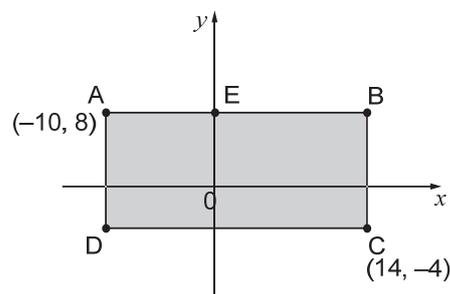


For each of these points, put a tick (✓) to show if it is inside the square or outside the square.

	inside the square	outside the square
(50, 70)	<input type="checkbox"/>	<input type="checkbox"/>
(60, -30)	<input type="checkbox"/>	<input type="checkbox"/>
(-10, 50)	<input type="checkbox"/>	<input type="checkbox"/>
(-30, -30)	<input type="checkbox"/>	<input type="checkbox"/>

**KS2 2007 Paper A level 5**

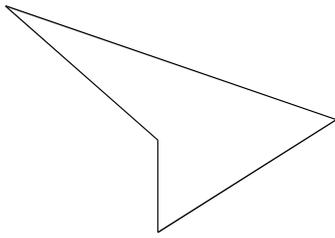
ABCD is a rectangle drawn on coordinate axes. The sides of the rectangle are parallel to the axes.



What are the coordinates of D and E?

**KS2 2009 Paper A level 5**

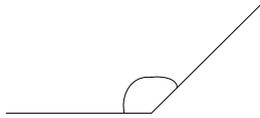
- Estimate angles, and use a protractor to measure and draw them, on their own and in shapes; calculate angles in a triangle or around a point



Measure accurately the longest side of this shape. Give your answer in millimetres.  
 Measure accurately the smallest angle in the shape. Use a protractor (angle measurer).

**KS2 2001 Paper A level 4**

Look at the angle.



Put a ring around the number which is the approximate size of the angle.

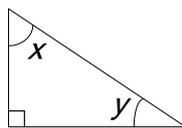
60° 90° 110° 135° 240°

**KS2 2000 Mental test level 5**

What is the angle between the hands of a clock at four o'clock?

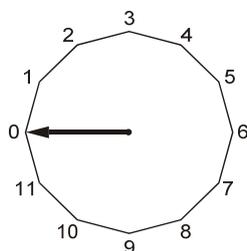
**KS2 2003 Mental test level 5**

Look at the triangle. Angle  $x$  is fifty-five degrees. Calculate the size of angle  $y$ .



**KS2 2001 Mental test level 5**

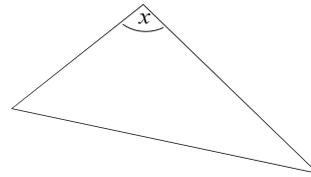
This regular 12-sided shape has a number at each vertex.



Ben turns the pointer from zero, clockwise through 150°. Which number will the pointer now be at?

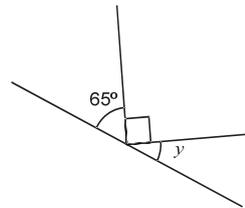
Nisha turns the pointer clockwise from number 2 to number 11. Through how many degrees does the pointer turn?

**KS2 2008 Paper A level 5**



Measure angle  $x$  accurately. Use a protractor (angle measurer).

**KS2 2004 Paper B level 5**

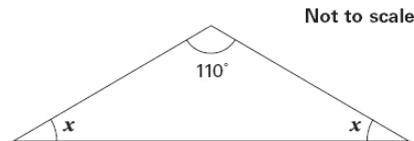


Not to scale

Calculate the size of angle  $y$  in this diagram. Do not use a protractor (angle measurer).

**KS2 2009 Paper B level 5**

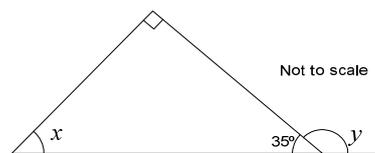
Here is an isosceles triangle.



Calculate the size of angle  $x$ . Do not use a protractor (angle measurer).

**KS2 2005 Paper B level 5**

Look at this diagram.

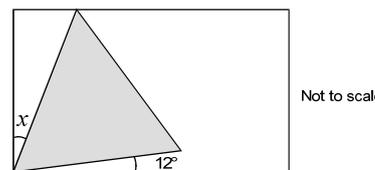


Not to scale

Calculate the size of angle  $x$  and angle  $y$ . Do not use a protractor (angle measurer).

**KS2 2002 Paper A level 5**

Here is an equilateral triangle inside a rectangle.



Calculate the value of angle  $x$ . Do not use a protractor (angle measurer).

**KS2 2001 Paper B level 5**

## Measuring

- Select and use standard metric units of measure and convert between units using decimals to two places (e.g. change 2.75 litres to 2750 ml, or vice versa)

Katie's glass holds a quarter of a litre when it is full. She fills it nearly to the top with juice.

Tick (✓) the approximate amount of juice she puts in the glass.

- 4 millilitres  
 20 millilitres  
 120 millilitres  
 220 millilitres  
 420 millilitres

**Y3 Optional test 2003 Paper B level 4**

How many millimetres are there in three centimetres?

**KS2 2008 Mental test level 4**

How many millimetres are there in fifteen centimetres?

**KS2 2006 Mental test level 4**

How many metres are there in four and a half kilometres?

**KS2 2004 Mental test level 4**

How many millilitres are there in three-quarters of a litre?

**Y4 optional test 2003 Mental test level 4**

Max jumped 2.25 metres on his second try at the long jump. This was 75 centimetres longer than on his first try. How far in metres did he jump on his first try?

**Y4 Optional test 2003 Paper B level 4**

A bottle holds 1 litre of lemonade. Rachel fills 5 glasses with lemonade. She puts 150 millilitres in each glass. How much lemonade is left in the bottle?

**KS2 2003 Paper A level 4**

This table shows the weight of some fruits and vegetables. Complete the table.

	grams	kilograms
potatoes	3500	3.5
apples		1.2
grapes	250	

**KS2 2002 Paper A level 4**

Put a ring round the number which is the approximate weight of a thirty-centimetre plastic ruler.

2 g 20 g 200 g 2 kg 20 kg

**KS2 2001 Mental test level 5**

How many grams are there in two point seven kilograms?

**KS2 2007 Mental test level 5**

How many grams are there in twelve kilograms?

**KS2 2003 Mental test level 5**

How many metres are there in three point eight kilometres?

**KS2 2009 Mental test level 5**

How many metres are there in one point five kilometres?

**KS2 2000 Mental test level 5**

How many millilitres are there in one and a quarter litres?

**KS2 2005 Mental test level 5**

A packet contains 1.5 kilograms of guinea pig food. Remi feeds her guinea pig 30 grams of food each day.



How many days does the packet of food last?

**KS2 2003 Paper A level 5**

There is 60 g of rice in one portion. How many portions are there in a 3 kg bag of rice?

**Y5 optional test 2003 Paper B level 5**

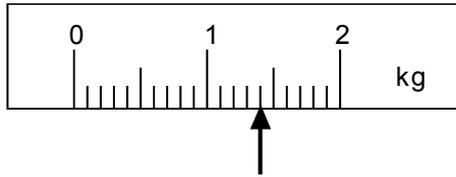
Cheddar cheese costs £7.50 for 1kg. Marie buys 200 grams of cheddar cheese. How much does she pay?

Cream cheese costs £3.60 for 1kg. Robbie buys a pot of cream cheese for 90p. How many grams of cream cheese does he buy?

**KS2 2003 Paper B level 5**

- Read and interpret scales on a range of measuring instruments, recognising that the measurement made is approximate and recording results to a required degree of accuracy; compare readings on different scales, e.g. when using different instruments

On this scale, the arrow (↑) shows the weight of a pineapple.

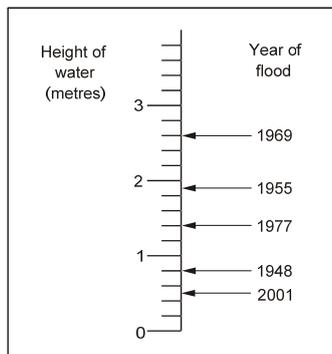


Here is a different scale. Mark with an arrow (↑) the weight of the same pineapple.



KS2 2001 Paper B level 4

This scale shows the dates of floods and the height of the water in the floods.

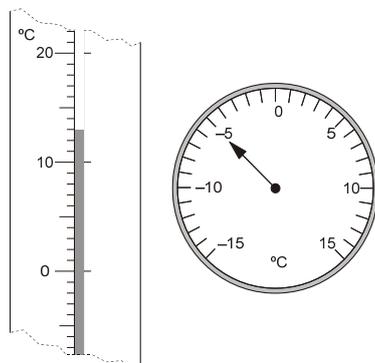


How high was the water in the 1955 flood?

How much higher was the water in the 1969 flood than in the 1948 flood?

KS2 2008 Paper B level 4

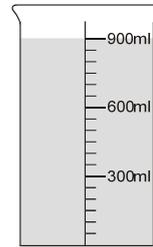
Here are two thermometers. They show two different temperatures.



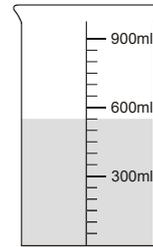
What is the difference between the two temperatures?

KS2 2007 Paper A level 4

This container has 900 ml of water in it.

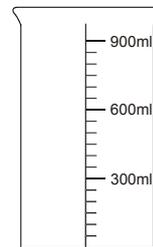


Lara pours out some water so it looks like this.



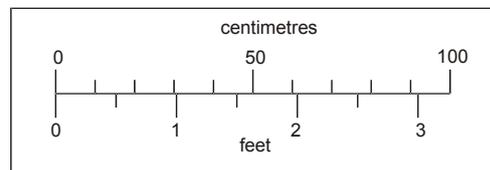
How much water has Lara poured out?

Then she pours out another 150ml of water. Draw an arrow (→) to show the new level of the water.



KS2 2009 Paper B level 5

This scale shows length measurements in centimetres and feet.



Not actual size

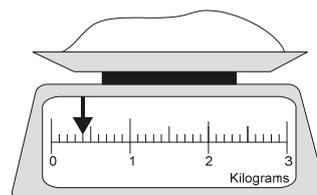
Look at the scale.

Estimate the number of centimetres that are equal to  $2\frac{1}{2}$  feet.

Estimate the difference in centimetres between 50 cm and 1 feet.

KS2 2009 Paper B level 5

Here is some flour on a weighing scale.



How many grams of flour are on the scale?

How much more flour must be added to the scale to make 1.6 kg?

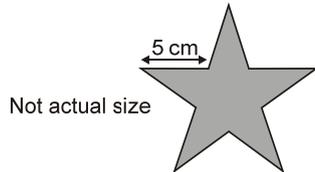
KS2 2006 Paper B level 5

• Calculate the perimeter and area of rectilinear shapes; estimate the area of an irregular shape by counting squares

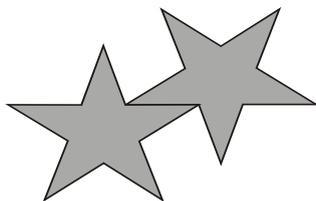
Calculate the perimeter of a rectangle which is eleven metres long and four metres wide.

**KS2 2003 Mental test level 4**

Millie has some star-shaped tiles. Each edge of a tile is 5 centimetres long.



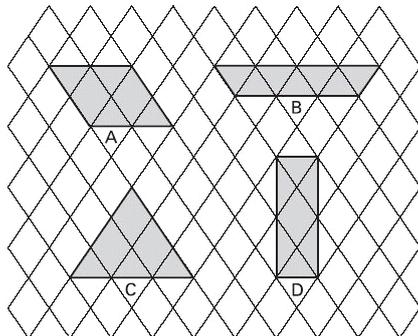
She puts two tiles together to make this shape.



Work out the perimeter of Millie's shape.

**KS2 2004 Paper A level 4**

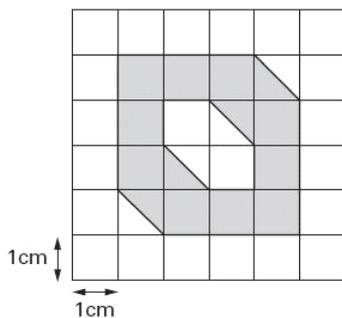
Here are some shapes drawn on a grid.



Write the letters of the two shapes that are equal in area.

**Y4 optional test 2003 Paper B level 4**

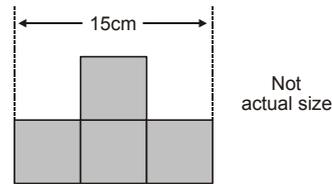
Here is a 1 cm square grid. Some of it is shaded.



What is the area that is shaded?

**KS2 2005 Paper B level 4**

This shape is made from 4 shaded squares.



Calculate the perimeter of the shape.

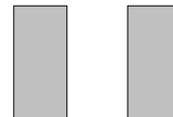
**KS2 2006 Paper A level 5**

The perimeter of a square is 72 centimetres.



Not actual size

The square is cut in half to make two identical rectangles.



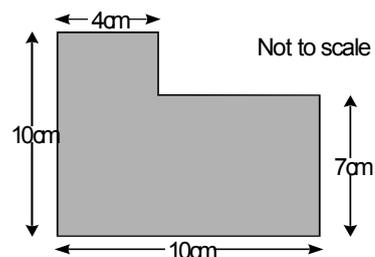
What is the perimeter of one rectangle?

**KS2 2008 Paper B level 5**

A rectangle measures twelve centimetres by four centimetres. What is its area?

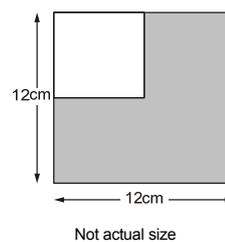
**KS2 2006 Mental test level 5**

What is the area of this shape?



**KS2 2002 Paper B level 5**

A white square is painted in one corner of a grey square. Each side of the white square is half the length of a side of the grey square.



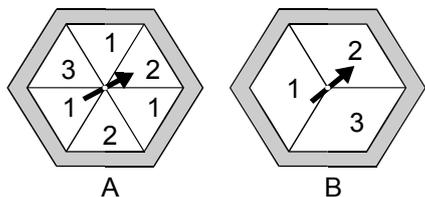
What is the area of the grey section?

**KS2 2007 Paper B level 5**

## Handling data

• Describe and predict outcomes from data using the language of chance or likelihood

Here are two spinners, A and B. Each one is a regular hexagon.



For each statement, put a tick (✓) if it is true. Put a cross (✗) if it is not true.

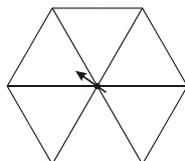
- Scoring '1' is more likely on A than on B.
- Scoring '2' is more likely on A than on B.
- Scoring '3' is as equally likely on A as on B.

Zara spins both spinners. The score on A is added to the score on B. She says, 'The sum of the scores on both spinners is certain to be less than 7'.

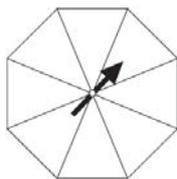
Is she correct? Circle Yes or No.  
 Explain how you know.

**KS2 2001 Paper A level 4**

Shade this spinner so that there is an even chance that the arrow will land on shaded.

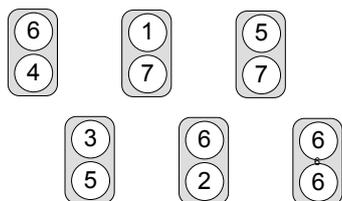


Here is a spinner which is a regular octagon. Write 1, 2 or 3 in each section of the spinner so that 1 and 2 are equally likely to come up and 3 is the least likely to come up.



**KS2 2005 Paper B level 4**

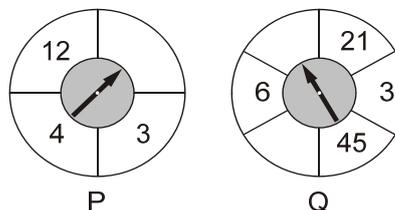
Each of these cards has two numbers on it.



Stefan chooses one card without looking. He adds the two numbers together. What is the most likely total of the numbers on his card?

**KS2 2009 Paper A level 4**

Here are two spinners, P and Q. Spinner P has 4 equal sections. Spinner Q has 6 equal sections.

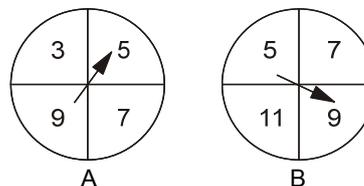


Ben spins the pointer on each spinner. For each statement below, put a tick (✓) if it is correct. Put a cross (✗) if it is not correct.

- Ben is more likely to score 4 on spinner P than on spinner Q.
- The score on spinner P is certain to be less than the score on spinner Q.
- Ben is equally likely to score an even number on spinner P and spinner Q.
- A score of less than 3 is equally likely on spinner P and spinner Q.

**KS2 2008 Paper B level 5**

Here are two spinners, A and B.



Hassan spins the pointer on each spinner. He adds his two scores together. For each statement put a tick (✓) to show if it is certain, possible or impossible. One has been done for you.

	certain	possible	impossible
The total will be more than 15		✓	
The total will be an even number			
The total will be less than 6			
The score on A will be less than the score on B			

**KS2 2007 Paper A level 5**

- Solve problems by collecting, selecting, processing, presenting and interpreting data, using ICT where appropriate; draw conclusions and identify further questions to ask

The table shows the cost of coach tickets to different cities.

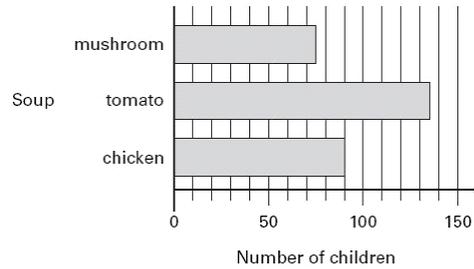
		Hull	York	Leeds
Adult	single	£12.50	£15.60	£10.25
	return	£23.75	£28.50	£19.30
Child	single	£8.50	£10.80	£8.25
	return	£14.90	£17.90	£14.75

What is the total cost for a return journey to York for one adult and two children?

How much more does it cost for two adults to make a single journey to Hull than to Leeds?

KS2 2002 Paper B level 4

All the children at Park School chose their favourite soup. The graph shows the results.

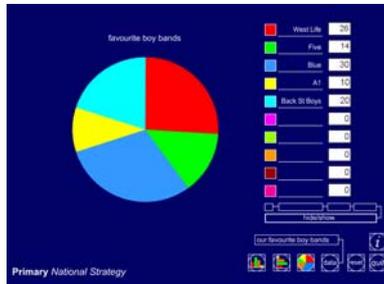


How many more children chose chicken soup than mushroom soup?

KS2 2005 Paper B level 5

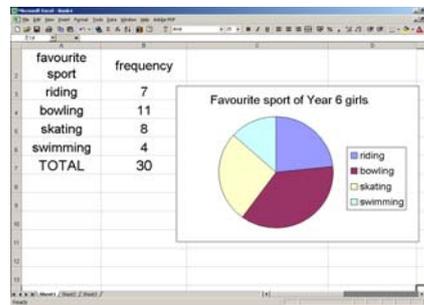
Examples of the use of ICT in data handling

Table and pie chart of favourite boy bands



ITP: Data handling

Table and pie chart of favourite sport of Year 6 girls, produced in Microsoft Excel



Table, dual bar chart and stacked bar chart showing favourite colours of two Year 6 classes, produced in Microsoft Excel

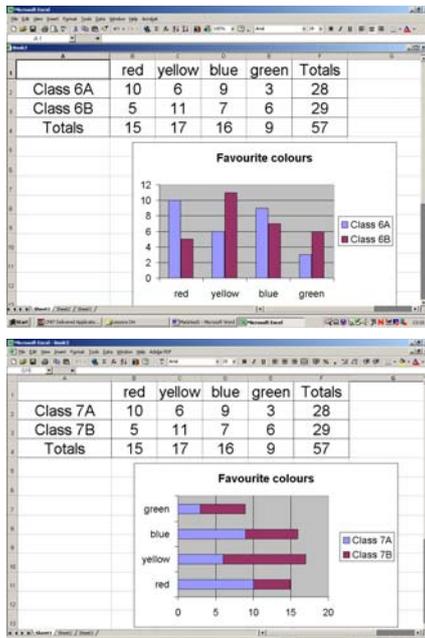
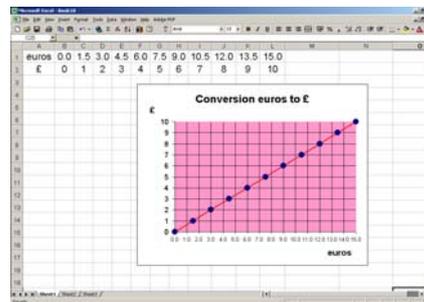
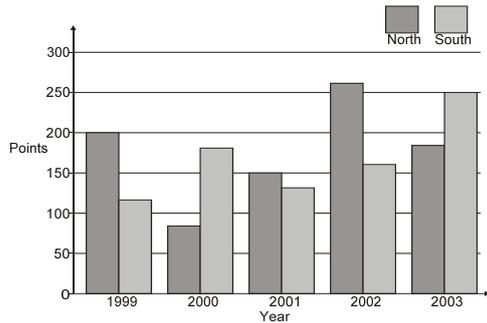


Table and conversion graph for euros to pounds, produced in Microsoft Excel



• Construct and interpret frequency tables, bar charts with grouped discrete data, and line graphs; interpret pie charts

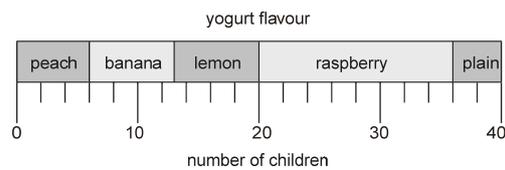
A school has a quiz each year. There are two teams. Here are their results.



In which year did North beat South by 100 points?  
 In which year did South beat North by the greatest amount?

KS2 2004 Paper B level 4

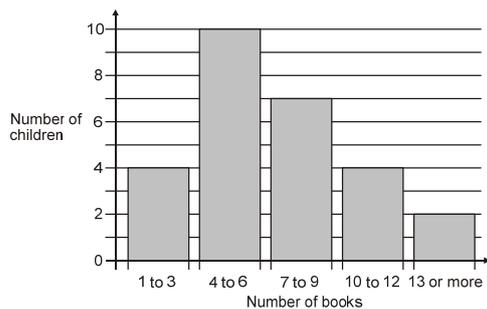
40 children each chose their favourite flavour of yogurt. This chart shows the results.



How many children chose lemon yogurt?  
 How many more children chose raspberry than plain yogurt?

KS2 2008 Paper B level 4

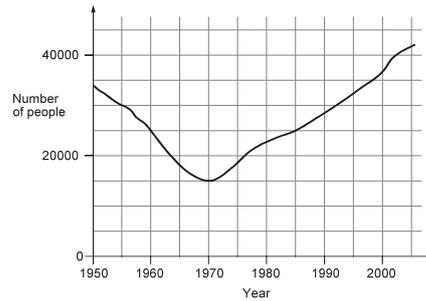
This chart shows the number of books some children read last month



How many children altogether read more than 9 books?  
 7 children read 4 books. 1 child read 5 books. Lin says, 'That means 2 children read 6 books.' Explain how she can work this out from the chart.

KS2 2006 Paper A level 5

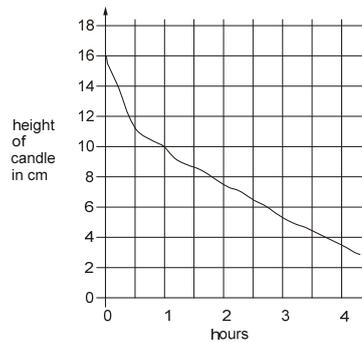
This graph shows the number of people living in a town.



How many people lived in the town in 1985?  
 In which year was the number of people the same as in 1950?  
 Find the year when the number of people first went below 20 000.

KS2 2008 Paper A level 5

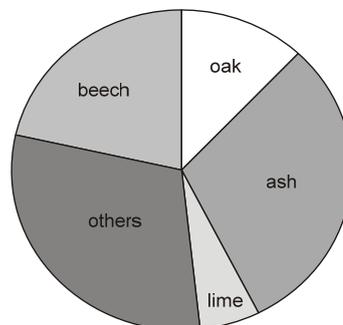
This graph shows the height of a candle as it burns.



What is the height of the candle after 2 hours?  
 How long does the candle take to burn down from 16 cm to 4 cm?

KS2 2007 Paper B level 5

Class 6 did a survey of the number of trees in a country park. This pie chart shows their results.



Estimate the fraction of trees in the survey that are oak trees.

The children counted 60 ash trees. Use the pie chart to estimate the number of beech trees they counted.

KS2 2006 Paper A level 5

• Describe and interpret results and solutions to problems using the mode, range, median and mean

The table shows the temperatures in 10 cities on a day in June.

City	Temperature in °C
Athens	31
Barcelona	29
Berlin	19
Brussels	21
Dublin	22
Geneva	19
Madrid	25
Moscow	15
Paris	19
Rome	31

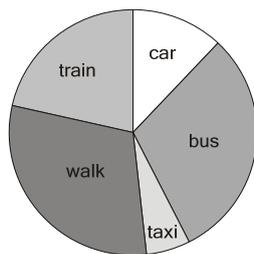
Which temperature was the mode?

The tables below show the number of days in each month in the year 2010.

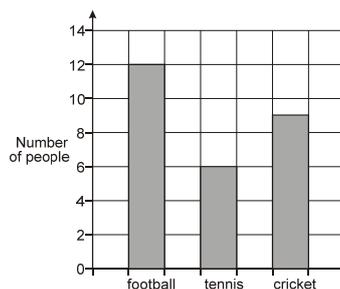
January	31	July	31
February	28	August	31
March	31	September	30
April	30	October	31
May	31	November	30
June	30	December	31

What is the mode of the number of days in the month?

Some pupils were asked about their main form of travel to school that day. The pie chart shows the results. Which form of travel is the mode?



Anna asked people 'What is your favourite sport?' She drew a bar chart to show the results. Which sport is the mode?



Write a number in each of these boxes so that the mode of the five numbers is 8.

□ □ □ □ □

The total of four numbers 80. What is their mean?

Anil runs 100 metres five times. These are his times in seconds.

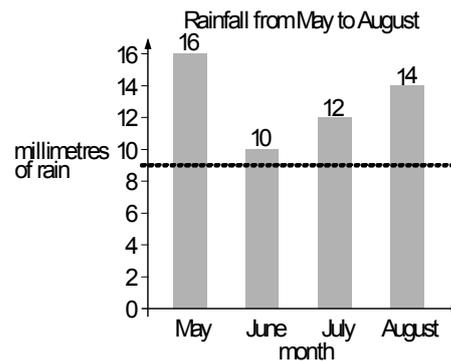
13.4	14.0	13.9	14.2	13.5
------	------	------	------	------

What is his mean (average) time?

Write a different number in each of these boxes so that the mean of the three numbers is 10.

□ □ □

Here is a bar chart showing rainfall.



Kim draws a dotted line on the bar chart. She says, 'The dotted line on the chart shows the mean rainfall for the four months.'

Use the chart to explain why Kim cannot be correct.

What is the mean rainfall for the four months?

**KS2 1998 Paper B level 5**

These are the marks from a spelling test.

Leroy	12
Kate	13
Tom	13
Omar	14
Josie	16
David	18
Gill	19

What is the median number of marks?

What is the mode of the marks?

Look at the numbers. Put a ring round the median.

5 10 11 14 21