

Maths Reasoning Activity – Statistics

Click on the following links to understand how to read and interpret data.

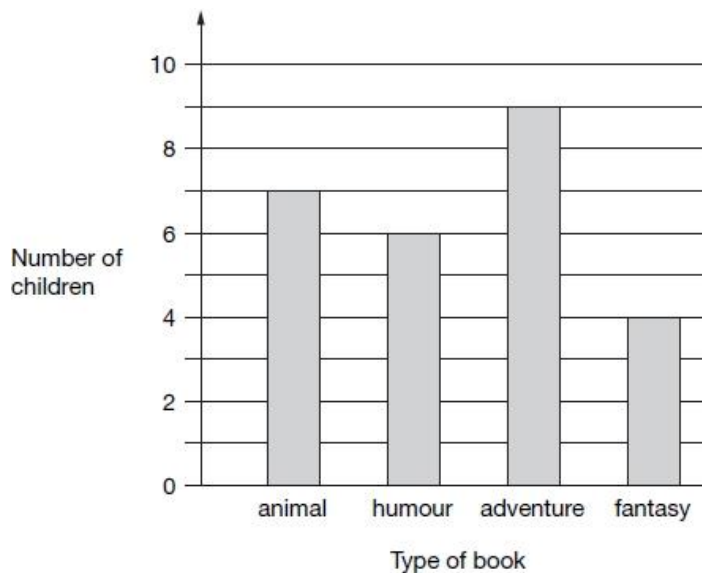
- [Tally charts, bar charts, pictograms and tables.](#)
- [Basics of creating a bar graph.](#)
- Click on this [link](#) to explore BBC bitesize on handling data and this [link](#) to understand how to interpret data.

Warming up *

Q1.

Class 6 did a survey of their favourite types of story book.

Here are their results.



How many more children chose **adventure** books than **fantasy** books?

1 mark

Five girls chose **animal** books.

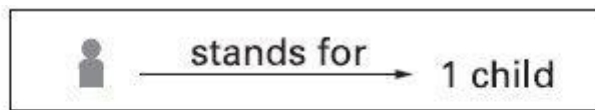
How many boys chose **animal** books?


















1 mark

Q2.

Some children in Class 4 are in a club.

This table shows the club they are in.



club	number of children
recorder	        
chess	  
computer	    

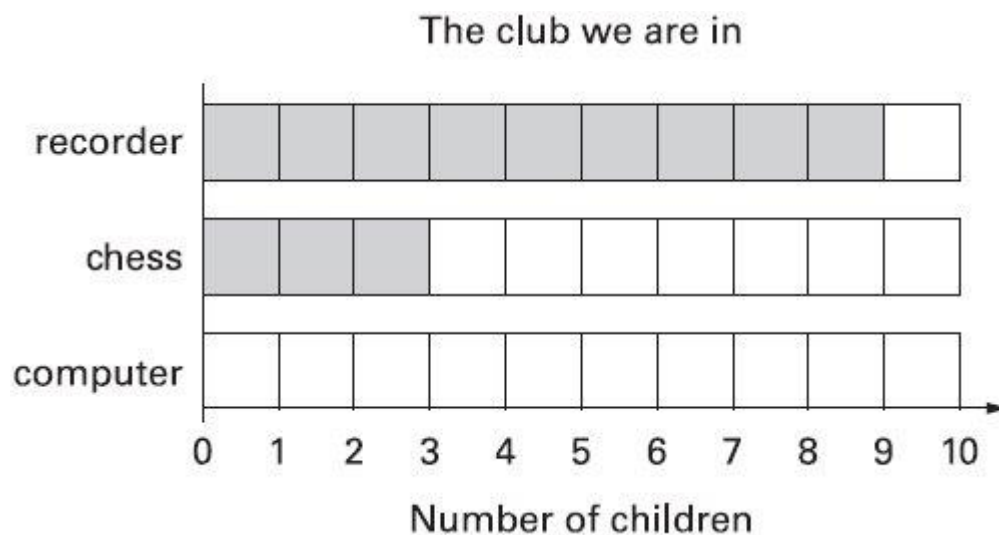
How many **more** children go to recorder than chess?

children

1 mark

This graph should show the same **data** as the table.

Shade in the correct number of blocks for **computer club**.



1 mark

Q3.

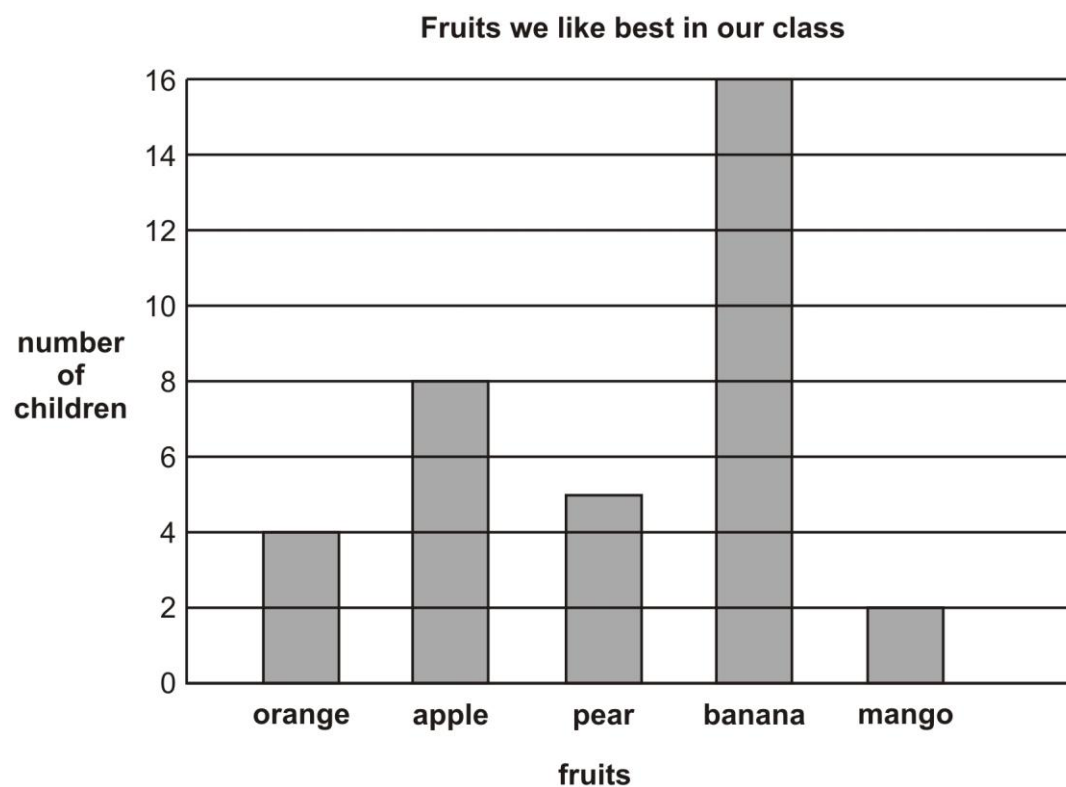
(a) **Complete** this tally chart.

Fruits we like best in our class		
fruit	tally	number of children
orange		5
apple		8
pear		3
banana		
mango		2

1 mark

(b) The children made this graph from the tally chart.

Put a cross (X) on the two columns which are wrong.



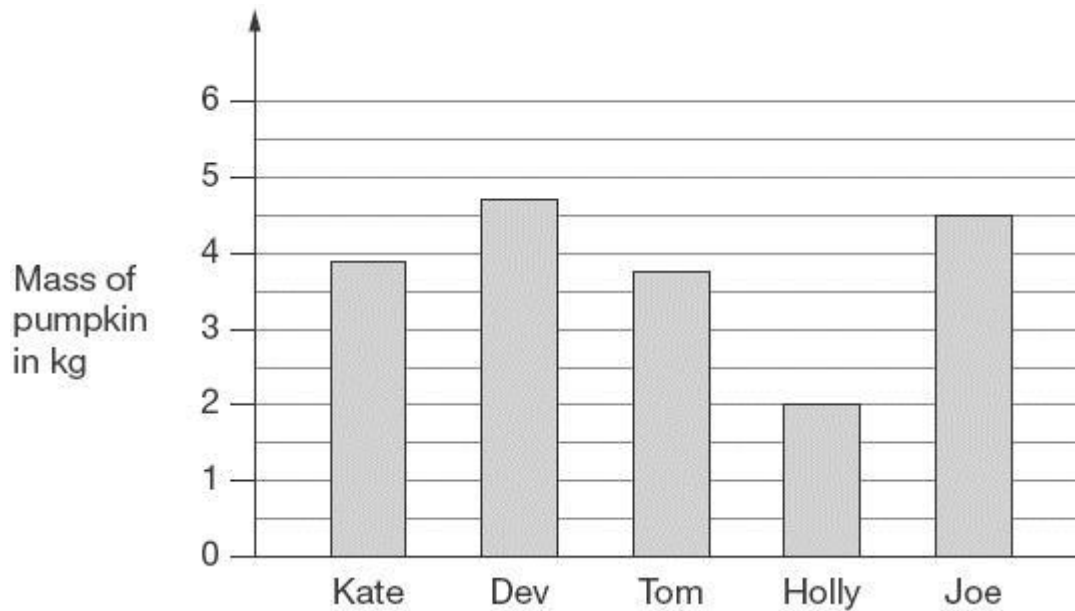
1 mark

Q4.

Five children grow pumpkins.



This bar chart shows how heavy their pumpkins are.



How much heavier is Joe's pumpkin than Holly's?






1 mark

What is the mass of Dev's pumpkin to the **nearest kilogram**?

1 mark

Q5.

Tally of traffic passing school

lorries		8
cars		
bicycles		
vans		
motorbikes		4

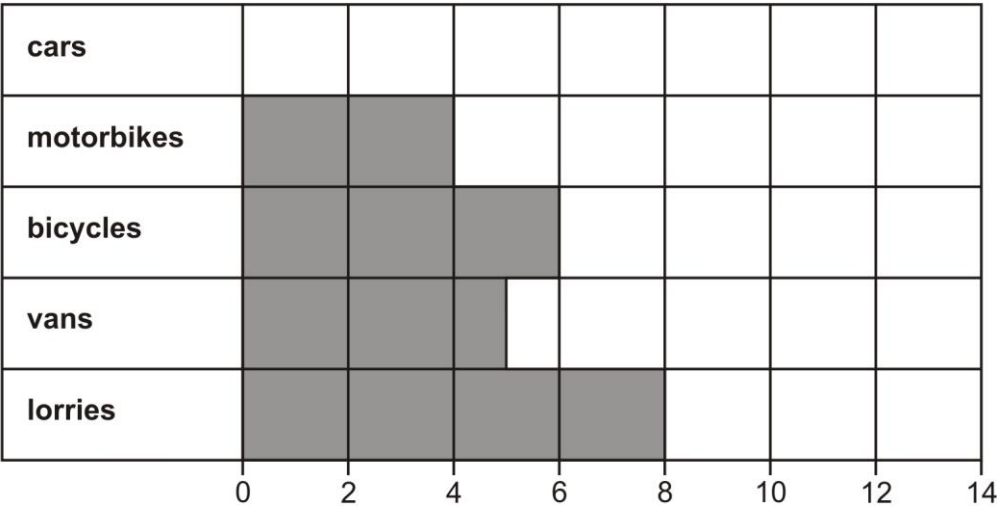
(a) Complete the tally.

1 mark

(b) How many vehicles were seen altogether?

1 mark

(c) Complete this graph using the tally.

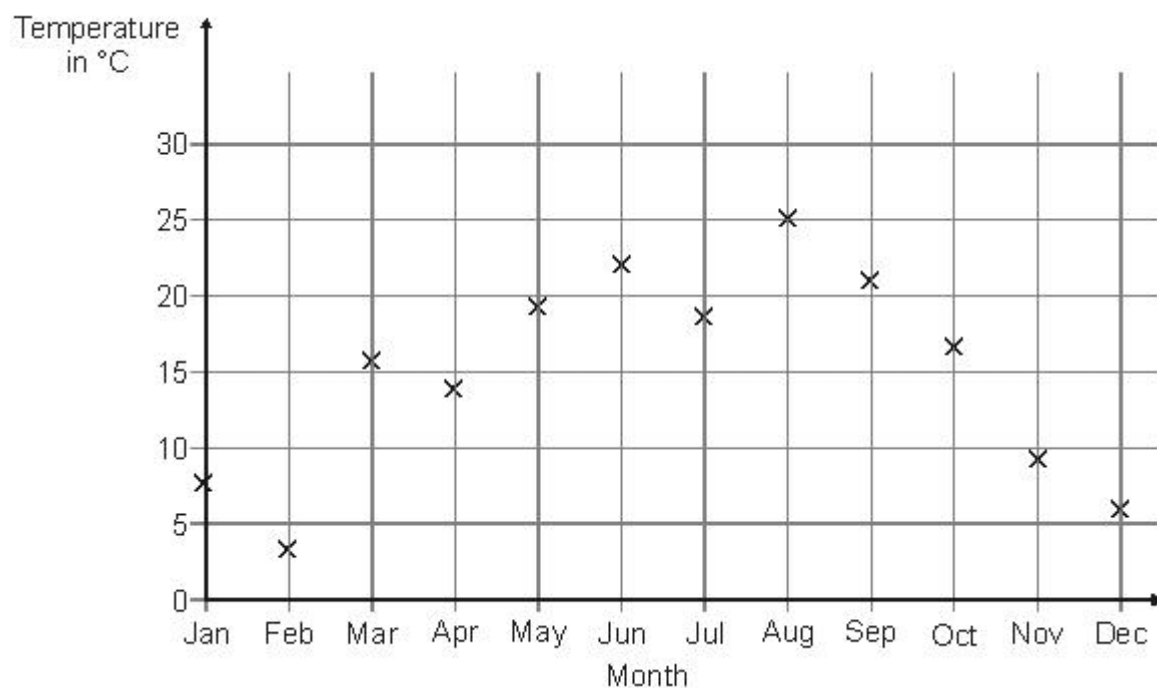


1 mark

Q6.

Abbie takes the temperature outside at midday on the first day of each month.

The graph shows her results from January to December.



How many months on the graph show a temperature between **10°C** and **20°C**?

1 mark

Find the difference in temperature shown on the graph between **July** and **August**.

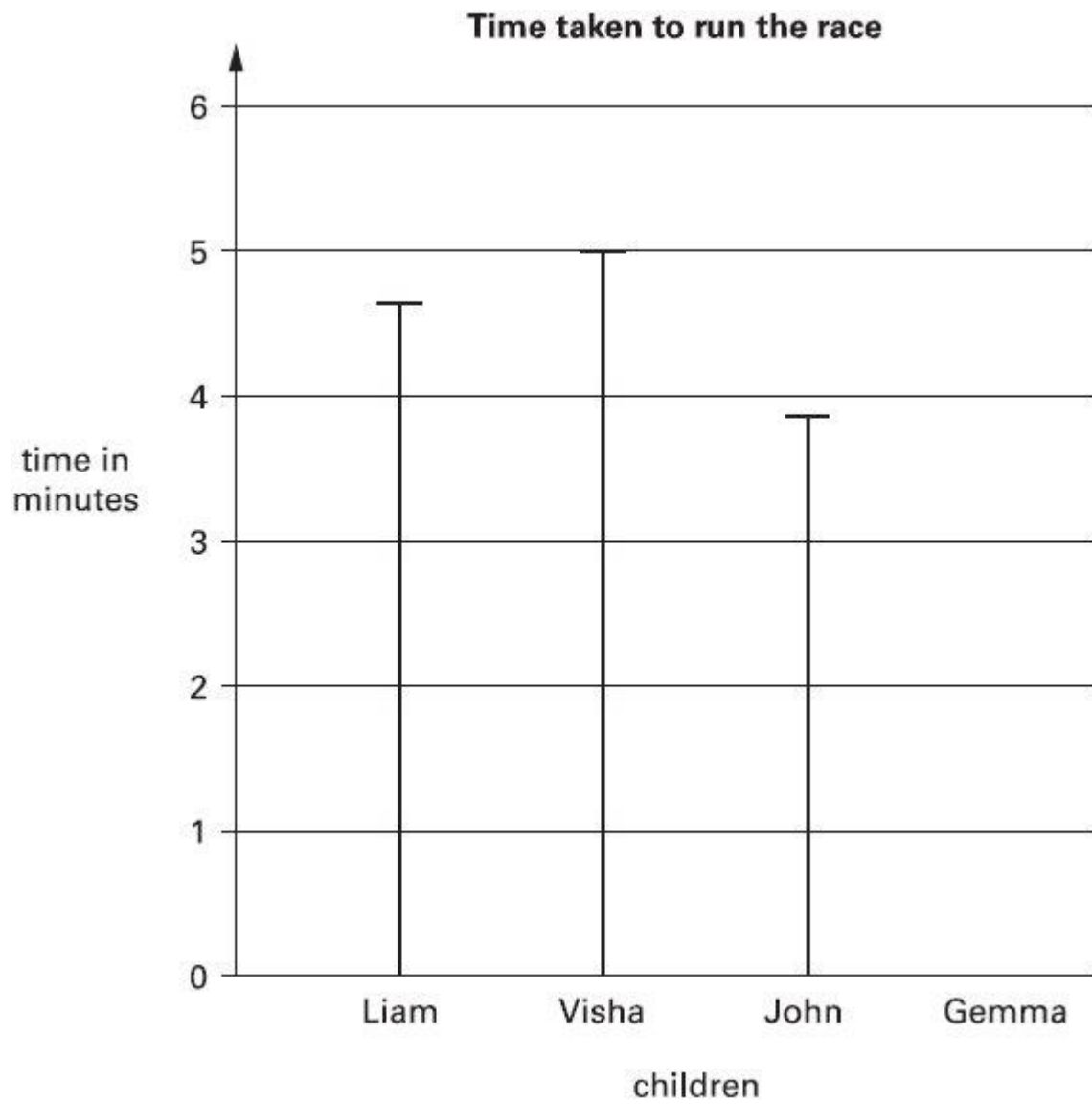
1 mark

Q7.

Four children run in a race.

Gemma takes 5 minutes 20 seconds.

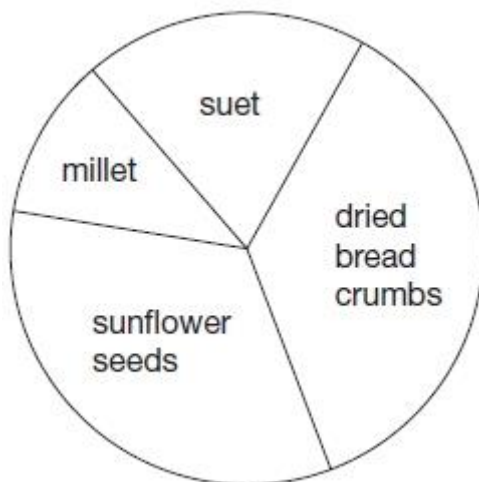
Complete the graph for Gemma.



1 mark

Q8.

This pie chart shows the ingredients to make a food mixture for wild birds.



Estimate the **percentage** of mixture that is suet.

%

1 mark

Mina uses 100 grams of millet in the mixture.

Estimate how many grams of sunflower seeds she should use.

g

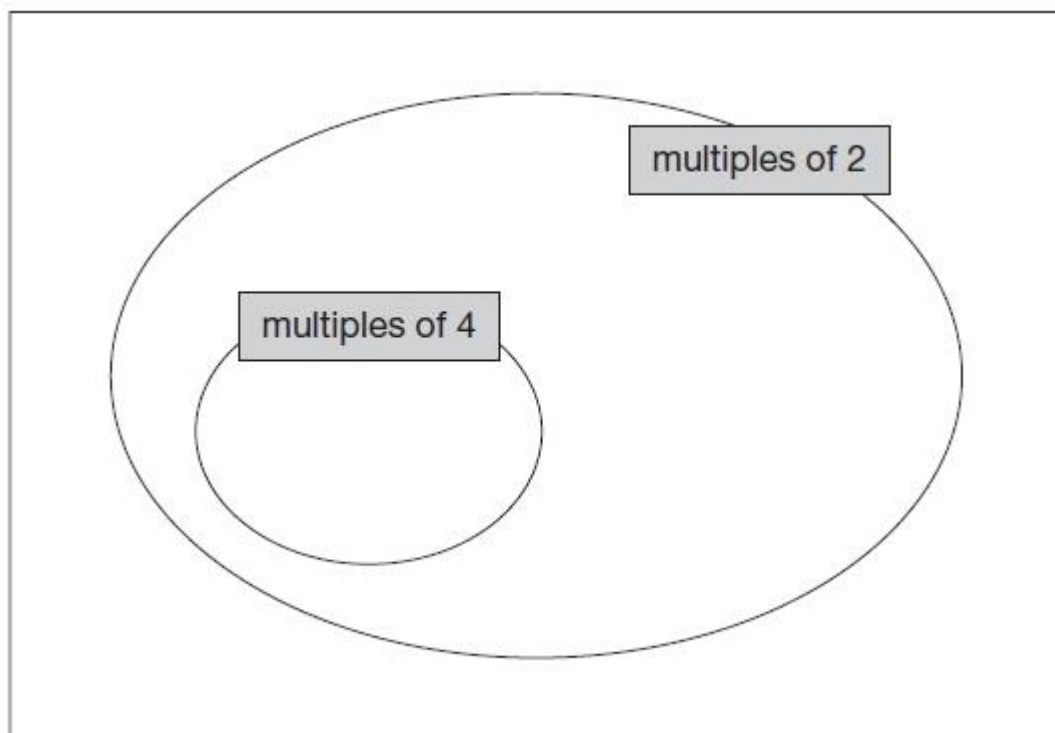
1 mark

Q9.

Here is a Venn diagram for sorting numbers.

Write each number in its correct place on the diagram.

10 11 12 13

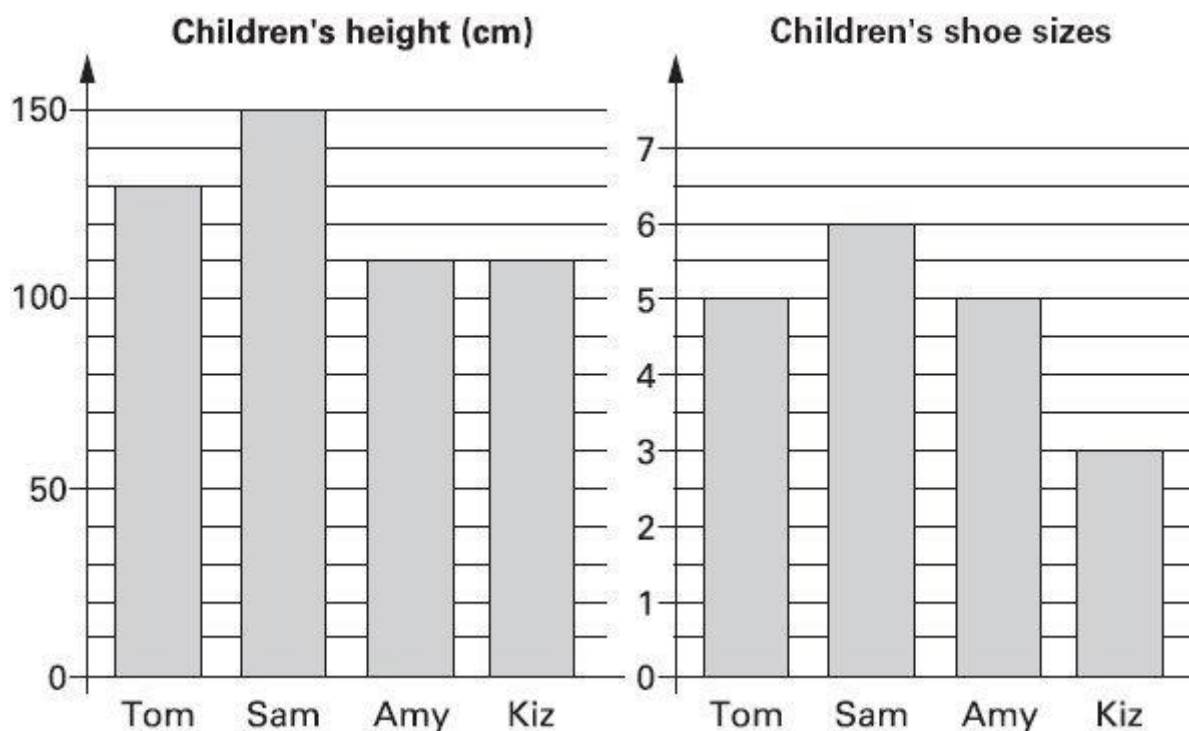


2 marks

Ready for a challenge ***

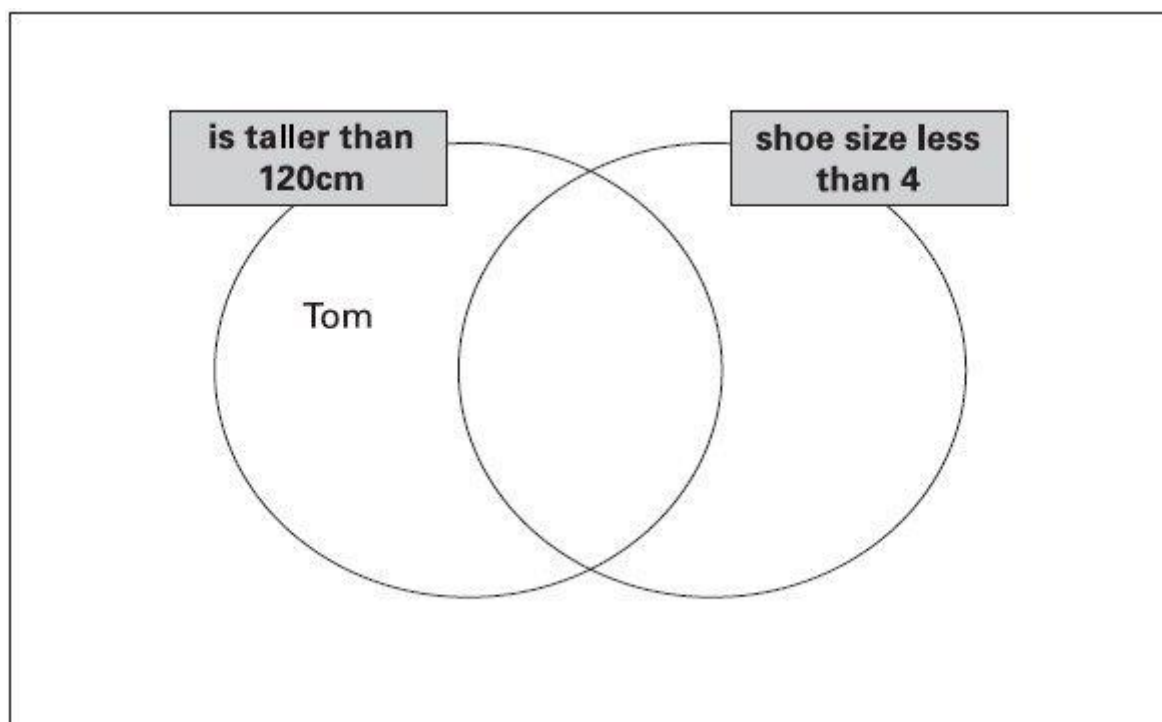
Q10.

These graphs show data about Tom, Sam, Amy and Kiz.



Use this data to write each child's name in the correct region on the Venn diagram.

One has been done for you.



2 marks

Q11.

Here is a diagram for sorting numbers.

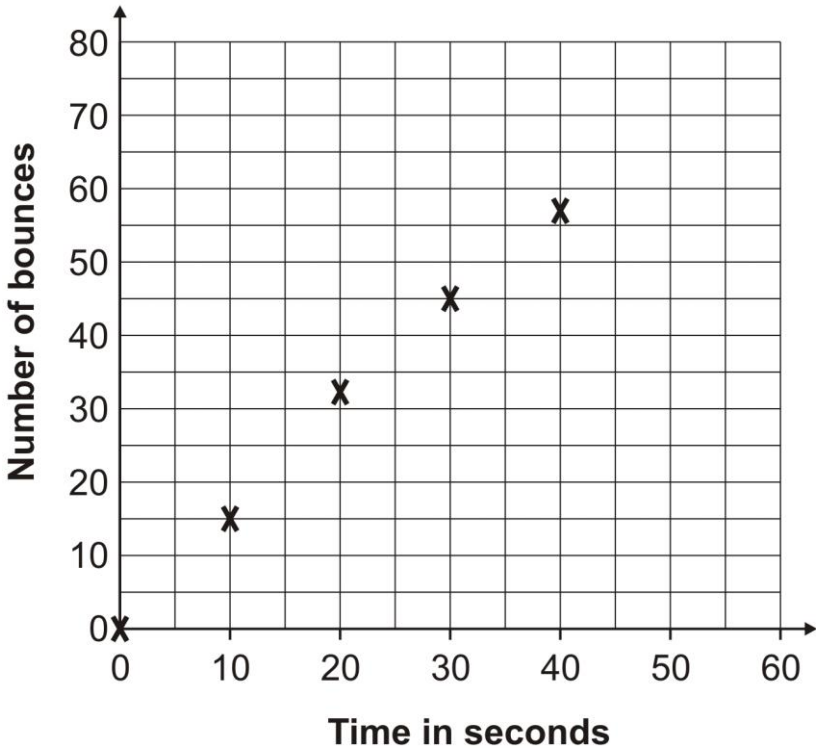
Write **one number** in each white section of the diagram.

	less than 1000	1000 or more
multiples of 20		
not multiples of 20		

2 marks

Q12.

Mandy bounces a ball. She plots the results on this graph.



After 50 seconds Mandy has done 65 bounces.

(a) **Plot** this on the graph.

1 mark

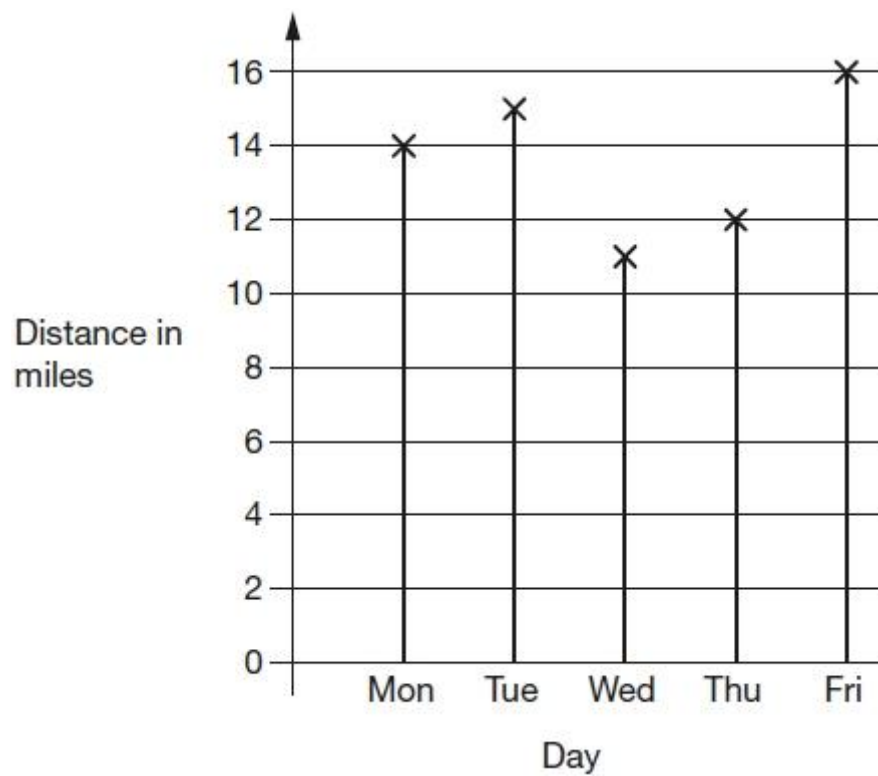
(b) **Use the graph** to estimate the number of bounces Mandy has done after **35 seconds**.

1 mark

Q13.

Amy went on a cycling holiday.

This chart shows how far she cycled each day.



How much **further** did Amy cycle on Friday than on Wednesday?

miles

1 mark

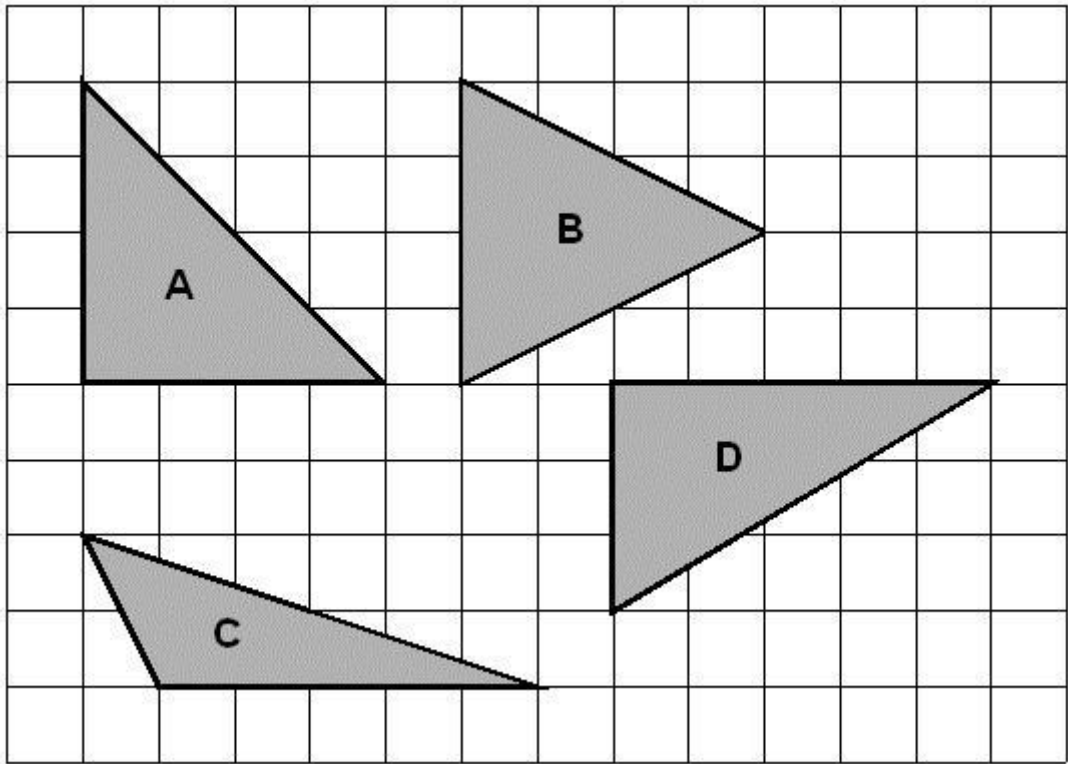
How far did Amy cycle **altogether** on the three days she cycled the most?

miles

1 mark

Q14.

Here are four triangles drawn on a square grid.



Write the letter for each triangle in the correct region of the sorting diagram.

One has been done for you.

	has a right angle	has an obtuse angle	has 3 acute angles
is isosceles	A		
is not isosceles			

2 marks

Q15.

Here is information about pupils in a class.

- The total number of pupils is 30
- 26 of the pupils do not wear glasses.
- A quarter of the pupils who do wear glasses are boys.
- There are 2 more boys than girls.

Use the information to fill in the missing numbers in the table below.

	Number who do wear glasses	Number who do not wear glasses	Total
Number of boys			
Number of girls			
Total			30

2 marks

Answers

Mark schemes

Warming up *

Q1.

(a) 5

1

(b) 2

1

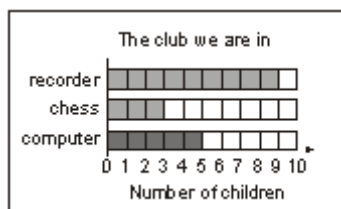
[2]

Q2.

(a) 6

1

(b) Graph completed as shown:



The blocks need not be shaded. Accept any other clear way of indicating the correct number of blocks, such as ticking or circling.

1

[2]

Q3.

(a) tally to indicate 5 oranges inserted

AND

16 inserted for the number of children who like bananas

This must be:

Do not accept:

Both correct for 1 mark.

1

(b) crosses drawn on orange and pear columns on graph

Both correct for 1 mark.

1

[2]

Q4.

(a) 2.5 OR $2\frac{1}{2}$

1

(b) 5

1

[2]

Q5.

- (a) 13, 6 and 5 inserted on tally chart

All correct for 1 mark.

1

- (b) 36

If the total corresponds to the total in the right-hand margin of the table in 8(a) then award the mark even if the table was completed incorrectly.

1

- (c) graph correctly completed to indicate 13 cars

Award the mark also if the number of cars shown on the graph matches the number written on the table even if this was not correct.

1

Feeling confident **

[3]

Q6.

- (a) 5

Do not accept a list of months.

1

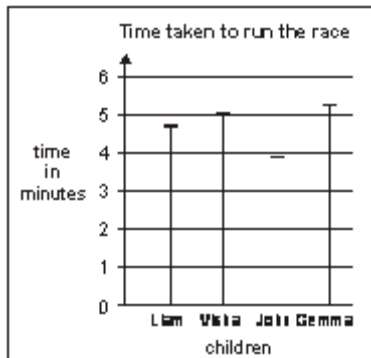
- (b) Answer in the range of 6 degrees to 7.5 degrees inclusive.

1

[2]

Q7.

Graph completed as shown:



Line drawn between 10.4 cm and 10.9 cm inclusive.

Accept slight inaccuracies in drawing, provided the intention is clear.

Accept line drawn with or without a horizontal finish.

[1]

Q8.

- (a) Answer in the range 15% inclusive to 25% exclusive

Do not accept 25%

1

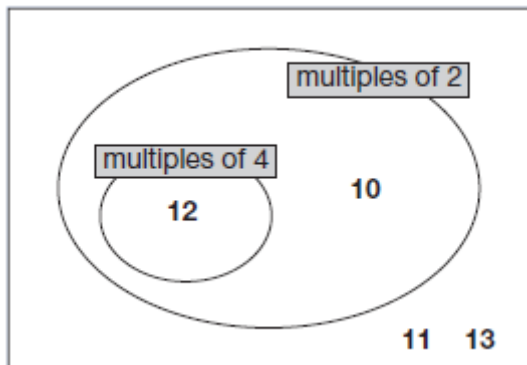
- (b) Answer in the range 200 g to 400 g exclusive

Do not accept 200 g OR 400 g.

1

Q9.

Award **TWO** marks for all four numbers correctly placed as shown:



If the answer is incorrect, award **ONE** mark for three numbers correctly placed.

Accept alternative unambiguous indications, eg lines drawn from the numbers to the appropriate regions of the diagram.

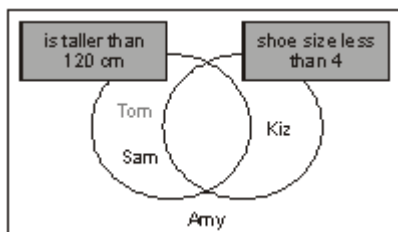
Do not accept numbers written in more than one region

Up to 2

Ready for a challenge ***

Q10.

Award **TWO** marks for all three names correctly placed in the regions as shown:



All three names must be correct for the award of both marks.

Do not accept a name repeated in different regions.

Accept any reasonable spelling of names, provided the intention is clear.

Do not penalise answers which offer additional names (other than those already given) on the diagram.

If the answer is incorrect, award **ONE** mark for two names correctly placed.

Up to 2
U2

[2]

Q11.

Award **TWO** marks for one correct number written in each white section of the table, eg

	less than 1000	1000 or more
multiples of 20	100	2000
not multiples of 20	19	1001

If the answer is incorrect, award **ONE** mark for three sections completed correctly.

*Accept more than one number in each section as long as **all** are correct.*

Up to 2

[2]

Q12.

- (a) X drawn at point (50, 65); intersection of two lines representing 50 seconds and 65 bounces.

Do not accept point (65, 50).

1

- (b) Accept any answer in the range of 48-53 bounces.

1

[2]

Q13.

- (a) 5

1

- (b) 45

1

[2]

Q14.

Award **TWO** marks for three letters in the correct regions of the sorting diagram, as shown:

A		B
D	C	

Award **ONE** mark for two letters in the correct regions of the sorting diagram.

Do not accept letters that are written in more than one region.

Accept alternative indications such as lines drawn from the shapes to the appropriate regions of the sorting diagram.

Up to 2

[2]

Q15.

Completes all 8 entries of the table correctly, ie

	... do wear glasses	... do not wear glasses	Total
... boys	1	15	16
... girls	3	11	14
Total	4	26	30

2

or

Completes at least four entries correctly

1
U2

[2]