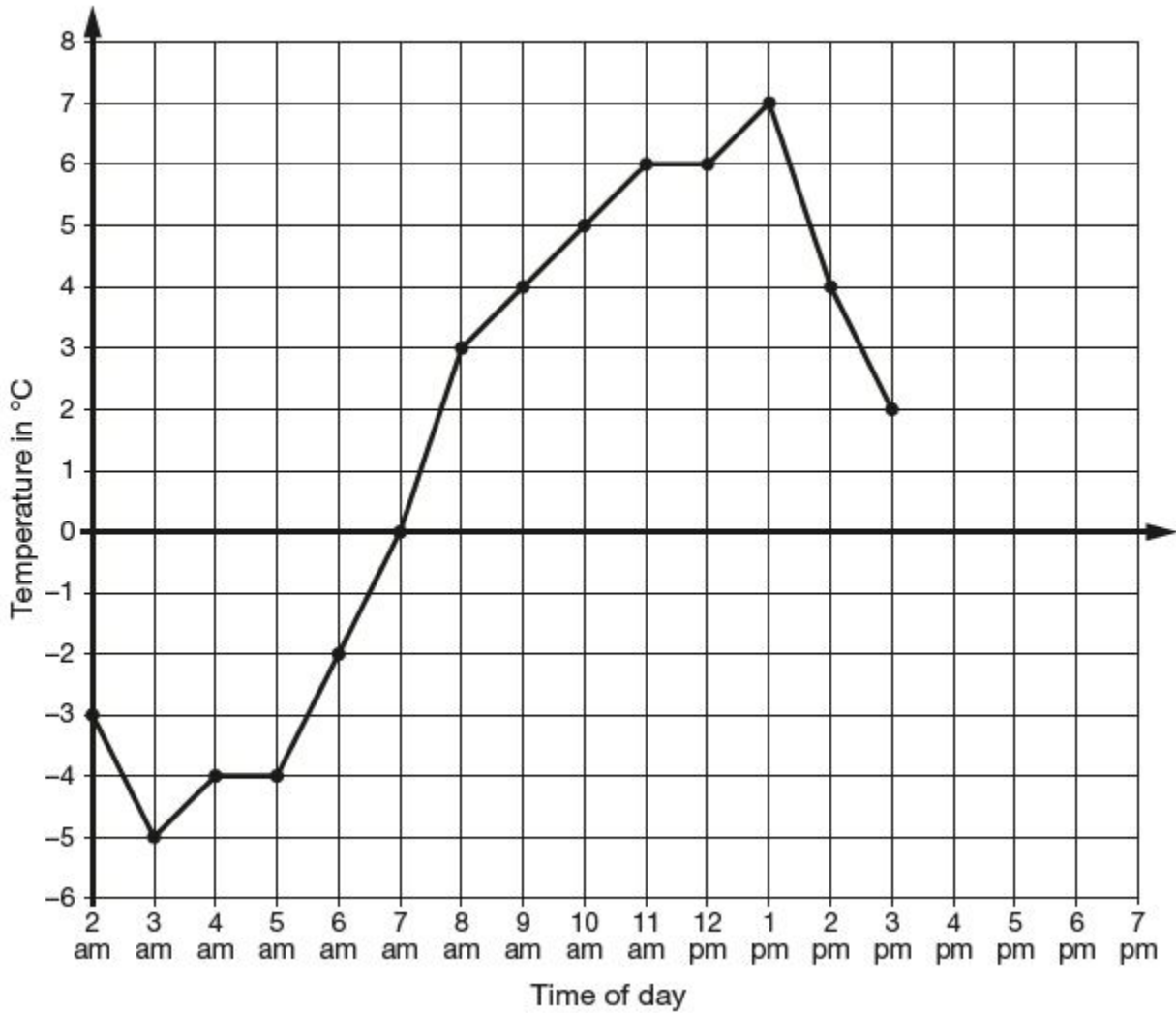


1

This graph shows the temperature in °C from 2 am to 3 pm on a cold day.



How many degrees **warmer** was it at 3 pm than at 3 am?

1 mark

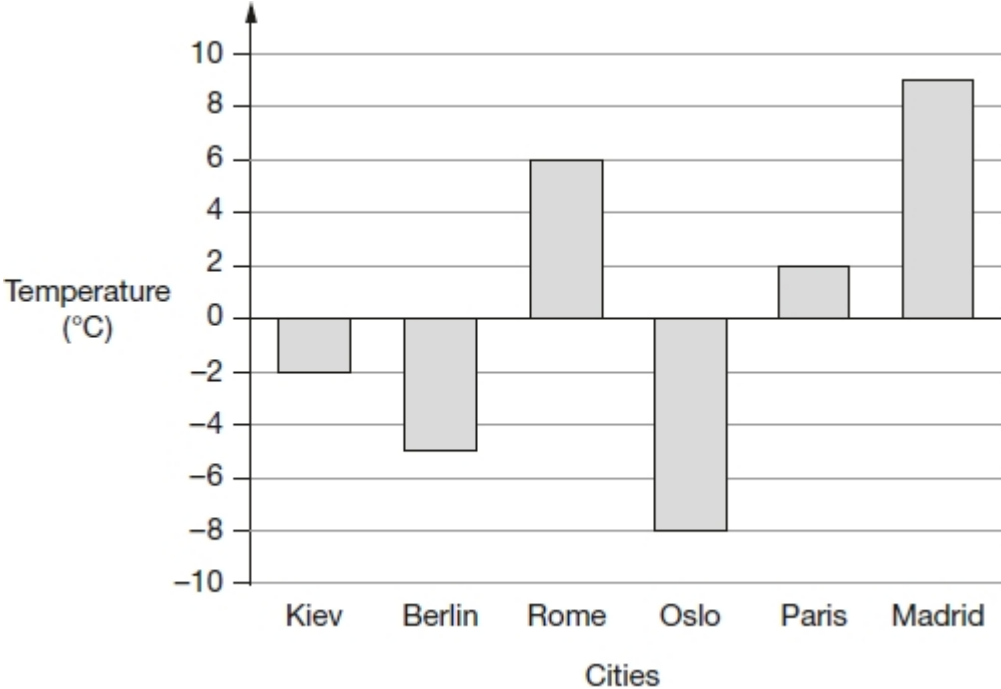
At 6 pm the temperature was 4 degrees lower than at 3 pm.

What was the temperature at 6 pm?

1 mark

2

This graph shows the temperature in six cities on one day in January.



Which city was 4 degrees **warmer** than Kiev?

1 mark

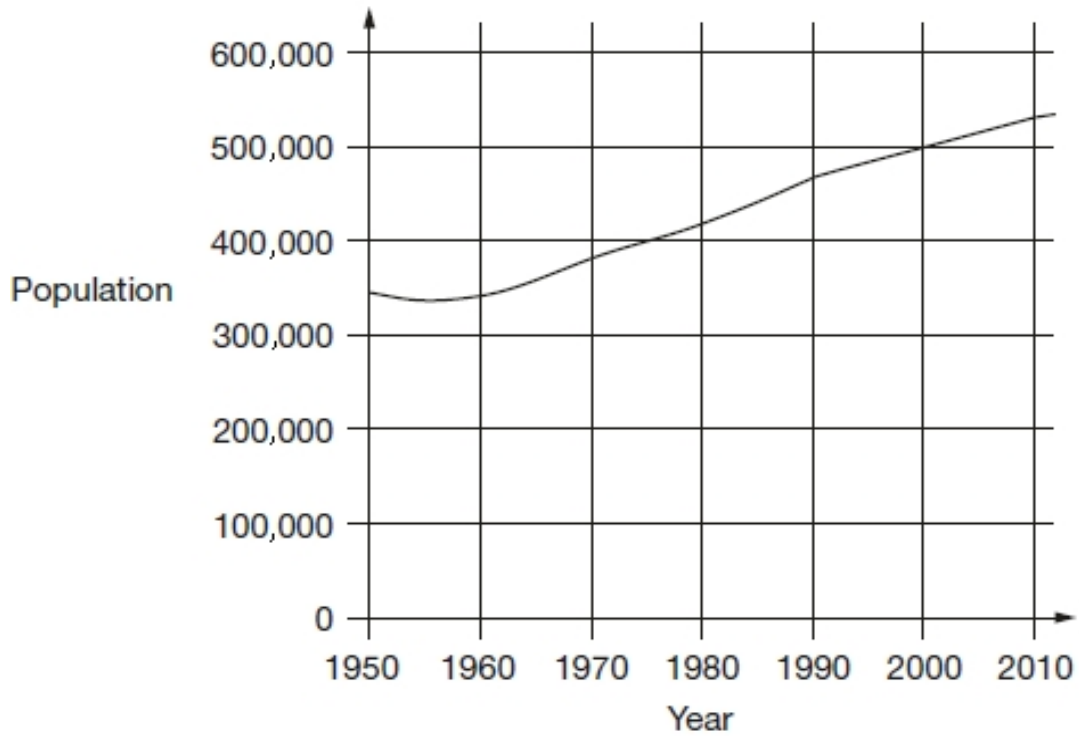
What was the **difference** between the temperature in Oslo and the temperature in Berlin?

°C

1 mark

3

This chart shows the population of Cornwall from 1950 to 2010.



Look at the chart.

In which year did the population first reach 400,000?

1 mark

How much did the population increase from 1950 to 2000?

1 mark

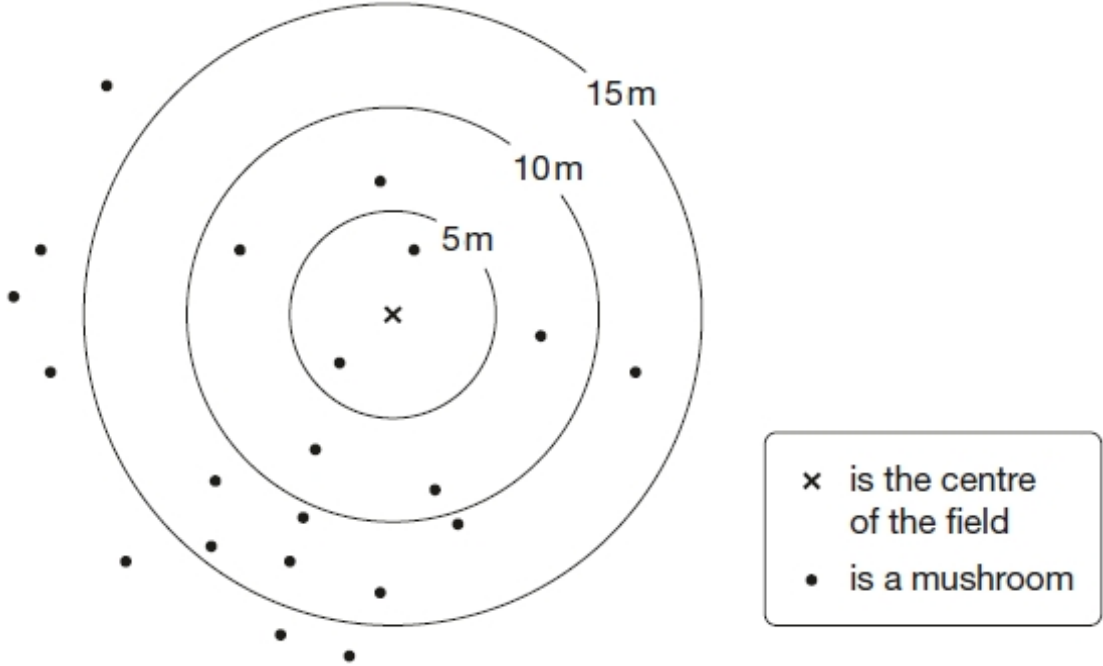
What was the population of Cornwall in 2010?

1 mark

4

Class 6 did a survey of mushrooms growing in a field.

The diagram shows the distances of mushrooms from the centre of the field.



How many mushrooms were more than 10 metres from the centre?

1 mark

What **fraction** of the mushrooms were less than 10 metres from the centre?

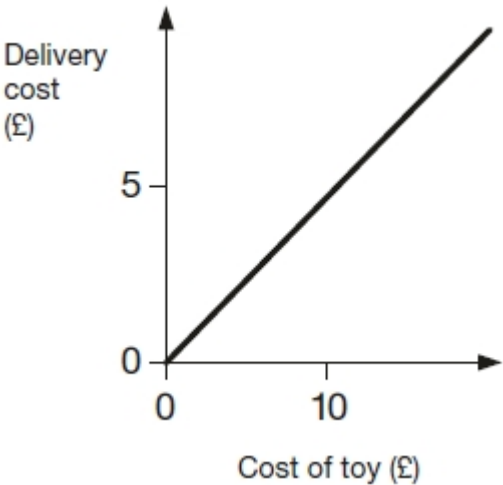
1 mark

5

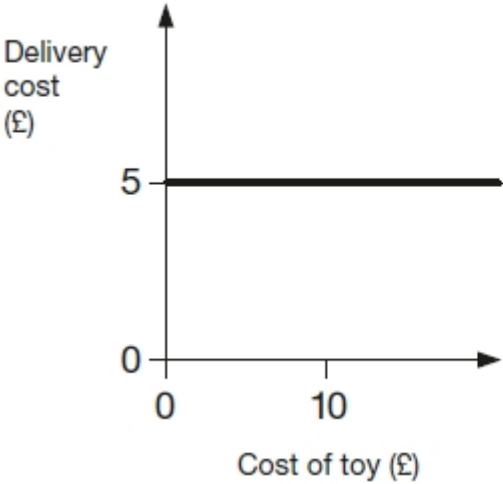
Two companies sell toys online. They charge to deliver.

Describe the delivery cost of the second company.

The first company is done for you.



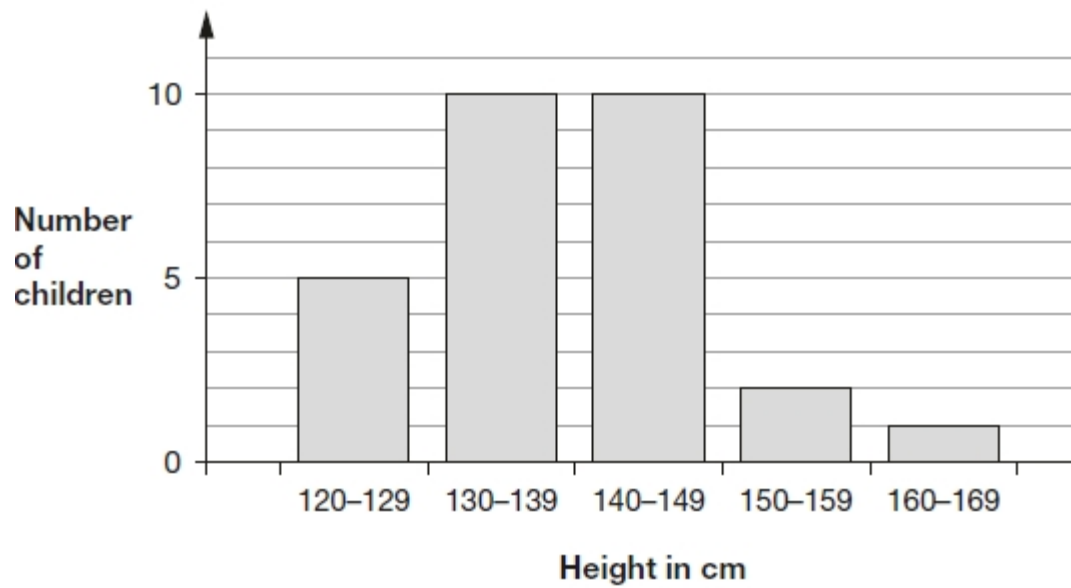
The more a toy costs, the more
the delivery costs.



1 mark

6

The graph shows the heights of 28 children in Alfie's class, to the nearest centimetre.



Alfie is 153 cm tall.

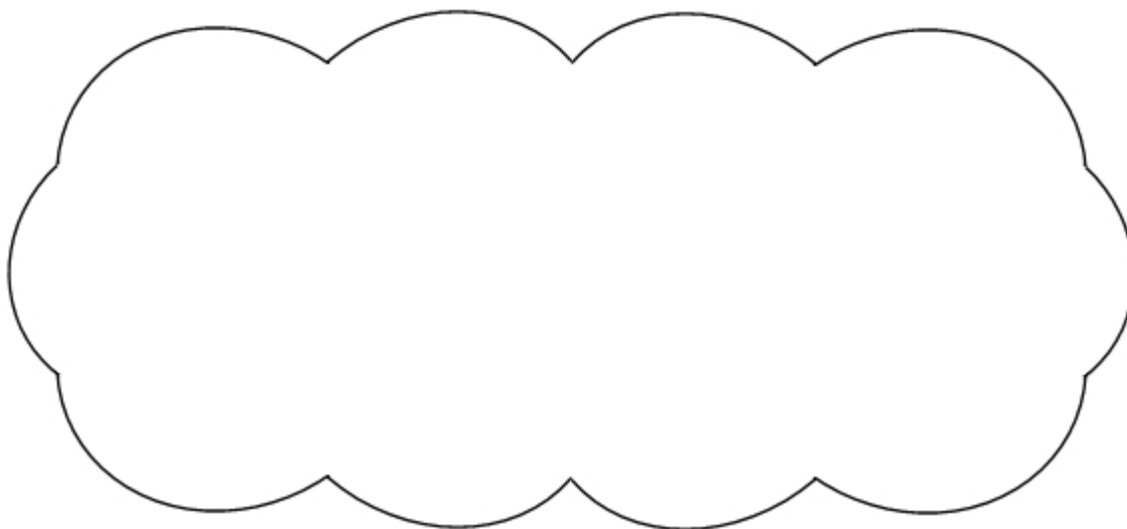
He says,

'Only one person in my class is taller than I am.'

Emma says,

'You can't tell this from the graph.'

Explain why Emma is correct.



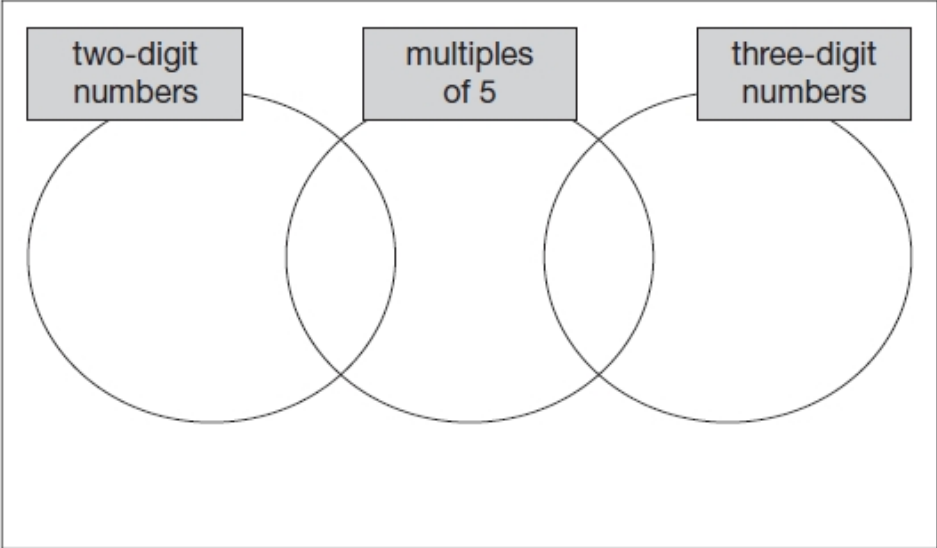
1 mark

7

Here is a diagram for sorting numbers.

Write **each** number in its correct place on the diagram.

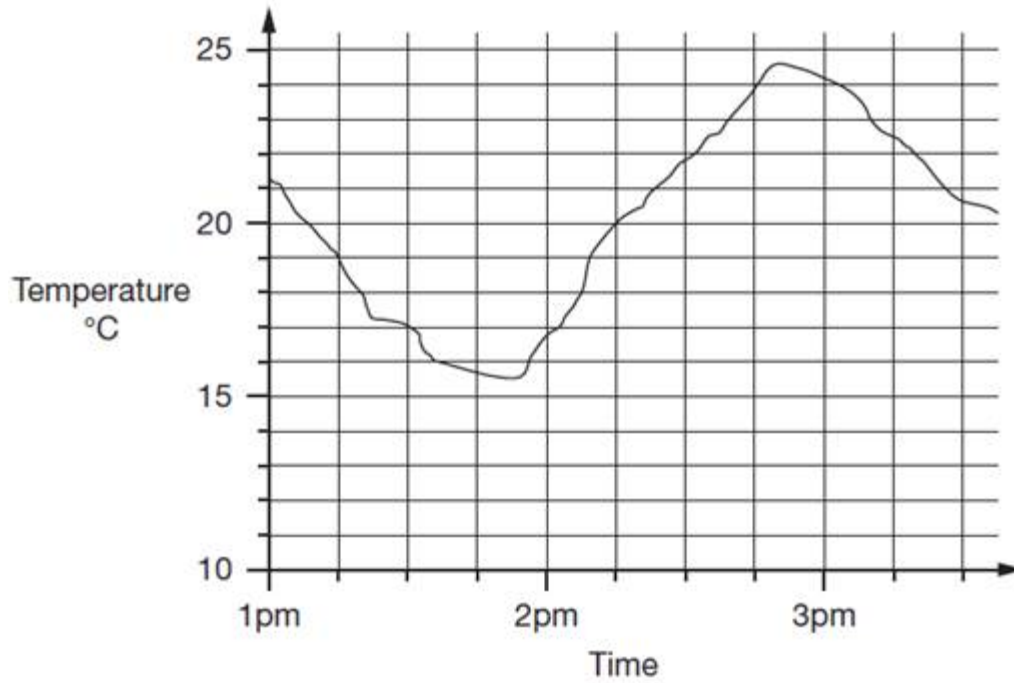
2 20 201 2000



2 marks

8

This graph shows how the temperature changed in Liam's room one afternoon.



Estimate the temperature at 3:15pm.

 °C

1 mark

Estimate the time when the temperature was highest.

 pm

1 mark

How much did the temperature change from 2pm to 2:30pm? Give your answer to the **nearest degree**.

 degrees

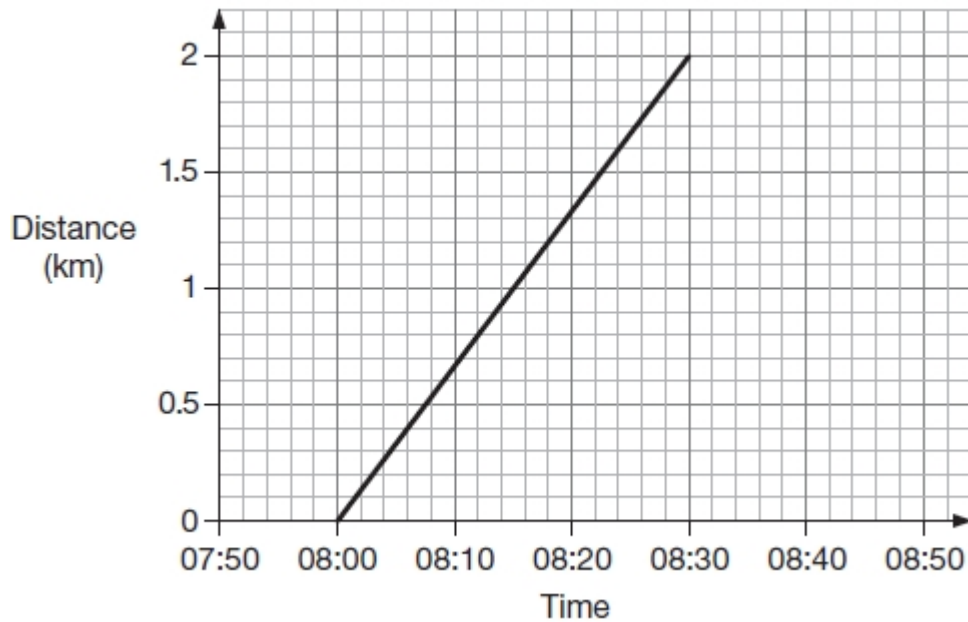
1 mark

9

Alfie and his brother walked from home to their school.

Their school is 2 kilometres from home.

The graph shows information about **Alfie's** journey.



- (a) How does the graph show that Alfie walked at a **constant speed** for all of his journey?

1 mark

- (b) Alfie's brother left home **10 minutes before** Alfie.

He arrived at school **20 minutes after** Alfie.

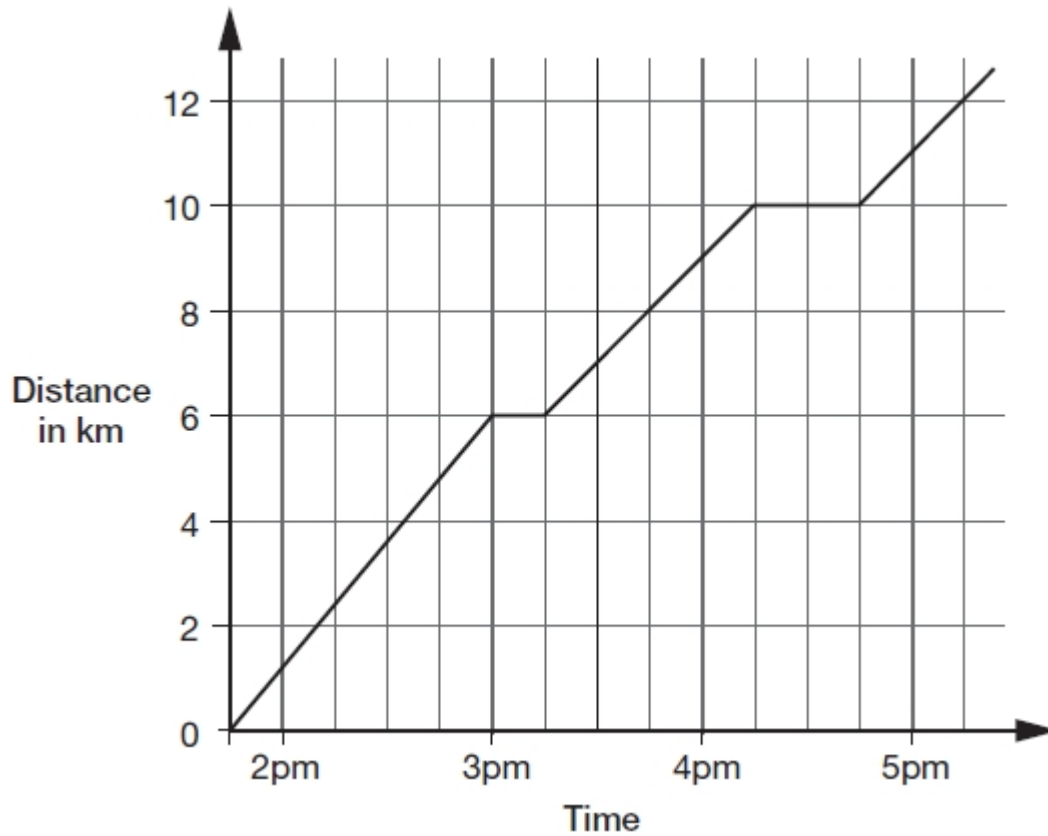
He walked at a **constant speed** for all of his journey.

At what time did Alfie overtake his brother?

1 mark

10

This graph shows the distance Alfie and Chen walked in an afternoon. They started at 1:45pm and had two breaks.



How many kilometres did they walk **between** the first and second breaks?

 km

1 mark

At what time did Alfie and Chen start their second break?

1 mark

11

Five children took part in a chess competition.

They each played six games.

This table shows how many games each child won, drew or lost.

	won	drew	lost
Alfie	1	3	2
Megan	2	2	2
Chen	3	3	0
Donna	4	0	2
Tom	0	5	1

How many children drew more games than they lost?

1 mark

Each child scores two points for a win,
one point for a draw,
no points for a loss.

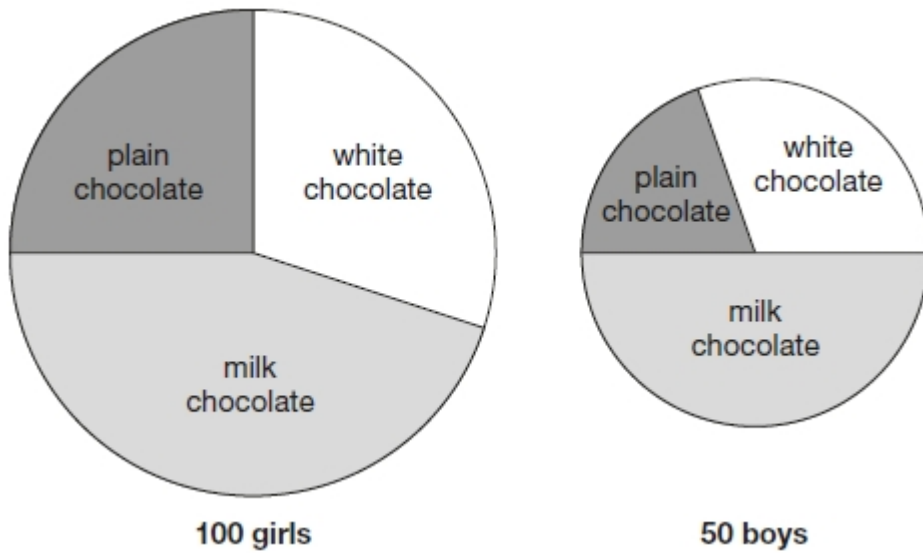
Who scored the most points?

1 mark

12

100 girls and 50 boys were asked which kind of chocolate they like best.

These two pie charts show the results.



Dev says:

"The pie charts show that more girls than boys liked milk chocolate best."

Dev is correct.

Explain how you know.

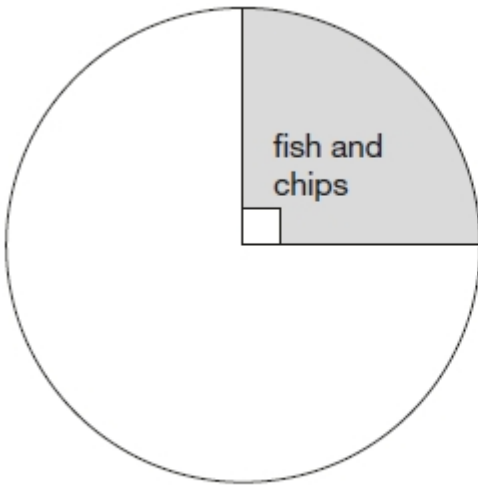
A large, empty, cloud-shaped outline with a scalloped border, intended for the student to write their explanation.

1 mark

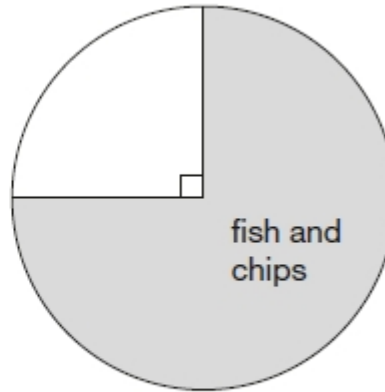
13

200 girls and 100 boys were asked about their favourite meal.

These pie charts show the results.



200 girls



100 boys

Look at the pie charts.

For each statement put a tick (✓) if it is true or a cross (X) if it is false.

Three-quarters of the boys chose fish and chips.

Three times as many boys as girls chose fish and chips.

Altogether, half of the children chose fish and chips.

25 more boys than girls chose fish and chips.

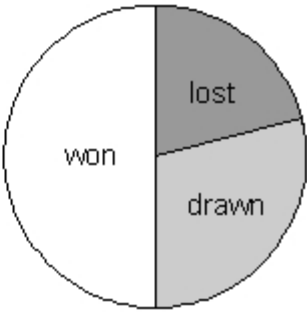
2 marks

14

The pie charts show the results of a school's netball and football matches.



Netball



Football

The netball team played **30** games.

The football team played **24** games.

Estimate the percentage of games that the **netball team lost**.

 %

1 mark

David says,

'The two teams won the same number of games'.

Is he correct?
Circle Yes or No.

Yes / No

Explain how you know.

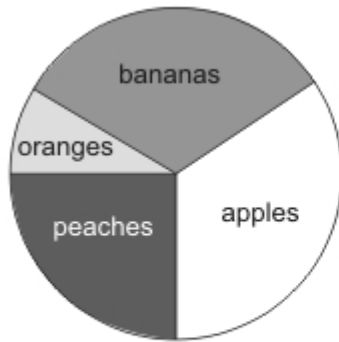
A large, cloud-shaped outline intended for the student to write their explanation.

1 mark

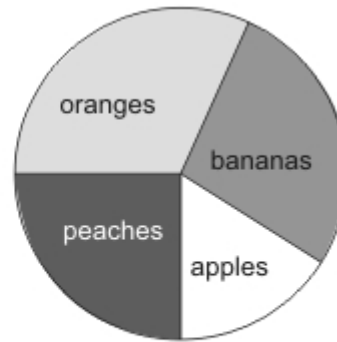
15

Some children work out how much money two shopkeepers get from selling fruit.

They use pie charts to show this.



Mrs Binns



Mr Adams

Mrs Binns gets **£350** selling **bananas**.

Estimate how much she gets selling **oranges**.

£

1 mark

Mrs Binns gets a total of £1000 and Mr Adams gets a total of £800

Estimate how much **more** Mrs Binns gets than Mr Adams for selling **peaches**.

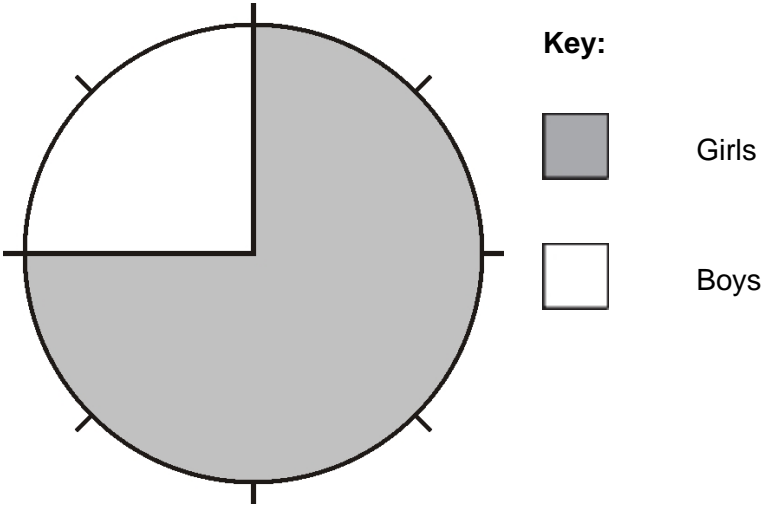
£

1 mark

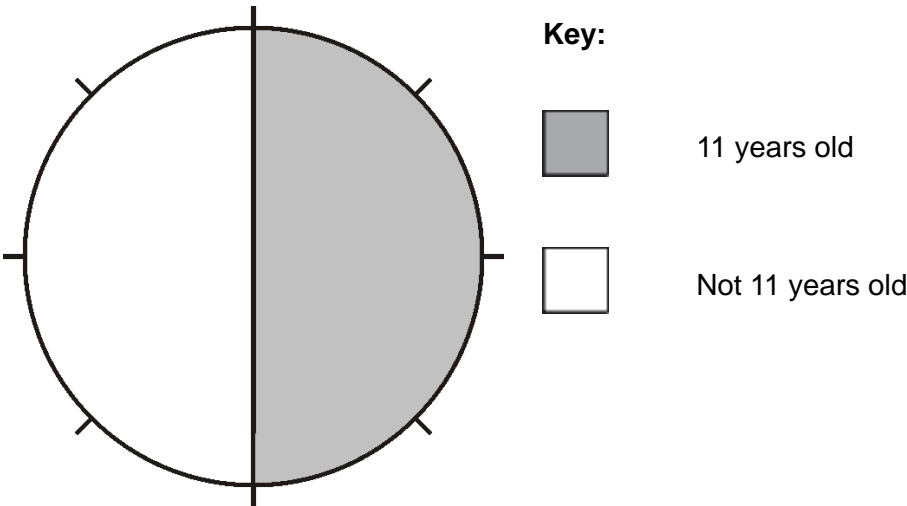
16

Look at the information in these two pie charts.

Pupils in class 6K

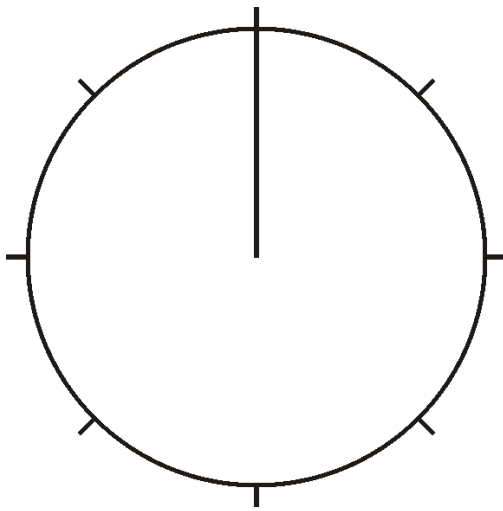


Girls in class 6K



Use the information in the two pie charts to complete the pie chart below.

Pupils in class 6K



Key:



11 years old girls



All other pupils in the class

1 mark

Mark schemes

1

(a) 7

1

Do not accept -7 or 7-

(b) -2

1

Do not accept 2-

[2]

2

(a) Paris

1

(b) 3

Do not accept -3.

1

[2]

3

(a) 1974 **OR** 1975 **OR** 1976

1

(b) A whole number answer in the range 130 000 to 180 000 **inclusive**.

1

(c) A whole number answer in the range 510 000 to 550 000 **exclusive**.

Do not accept 510 000 OR 550 000

1

[3]

4

(a) 14

1

(b) $\frac{1}{3}$

Accept equivalent fractions eg $\frac{7}{21}$

Ignore subsequent work if $\frac{7}{21}$ is simplified incorrectly.

Accept follow through in part (b) of $\frac{7}{a+7}$

1

[2]

5

Gives a correct description that indicates the delivery cost is constant, eg:

- The delivery cost is always £5
- The cost is always £5 no matter how much the toy costs
- Delivery stays the same as the cost of toy increases

Accept minimally acceptable explanation, eg:

- *It is £5*

Accept omission of the actual delivery cost, eg:

- *It always costs the same*
- *The cost is the same*
- *The cost of the toy does not affect the delivery cost*

! Condone correct response with the pound sign omitted, eg:

- *It is always 5*

! Condone explanations which refer to toys costing up to £20

Do not accept incomplete or ambiguous explanation, eg:

- *They are equal amounts*

[1]

6

Gives a correct explanation which demonstrates how the graph shows two children could be taller than Alfie, eg:

- One person from the class is 160-169cm. But someone as well as this person could be taller than Alfie. 2 people range from 150-159 cm, the other person could be 154, 155, etc

Minimally acceptable explanation, eg:

- *It could be 1.64, 1.56, Alfie*
- *It depends on how tall the other person in his height group is*
- *There could be someone between 150-159 cm who is taller than Alfie*

! Condone incorrect use of boundary values, eg:

- *One child is in the range 160 cm–169 cm.
Don't know how tall the other child
between 150 cm and 159 cm is*

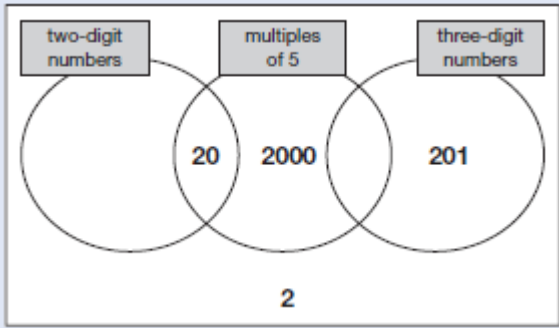
Do not accept incomplete or incorrect explanation, eg:

- *There is 1 child in the range 150 cm-159 cm taller than Alfie*
- *There could be two children taller than Alfie*

[1]

7

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



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

Do not accept numbers written in more than one region.

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

Up to 2m

[2]

8

(a) Accept answers in the range 22.2 to 22.8 exclusive.

Do not accept 22.2 or 22.8

1

(b) Accept answers in the range 2:48pm to 2:52pm inclusive.

The answer is a specific time.

1

(c) 5

1

[3]

9

Gives a correct interpretation of the graph, eg:

- It is a straight line
- It goes up steadily
- The angle of the line stays the same
- The gradient of the line is constant

Accept minimally acceptable explanation, eg:

- *It is straight*
- *It doesn't bend*
- *It is a diagonal*

Do not accept incomplete or ambiguous explanations that do not sufficiently imply a constant speed and / or do not demonstrate the relationship holds for the entire graph, eg:

- The line goes straight up
- It is not wobbly
- It is level
- Every 5 mins he walks the same distance
- He walks 1km in the first 15 mins and 1km in the second 15 mins

! Values read from graph

Accept, provided it is clear the relationship holds for the entire graph.

Values should be accurate within +/- 0.1km and / or +/- 2 minutes, eg:

- 0.7km every 10 minutes
- Every 7.5 minutes he walks about half a km

! Calculation of kilometres per hour

Accept values in the range 3.7 to 4.3km per hour inclusive.

1

(b) 08:10

! Accept values between 08:09 and 08:11 inclusive

! Time

1

[2]

10

(a) 4 km

1

(b) 4:15pm

The answer is a specific time

1

[2]

11

(a) 3

Do not accept a list of names.

1

(b) Chen

Accept unambiguous abbreviations or recognisable misspellings.

Accept 9

1

U1

[2]

12

Award **ONE** mark for an explanation which recognises that the two pie charts represent different numbers of children, e.g:

- '25 boys like milk chocolate best and more than 25 girls do'
- 'It's almost half of 100 girls and that's more than half of 50 boys'
- 'The pie chart shows that half of the boys chose milk chocolate and that's 25. About 45 girls chose milk chocolate because it's nearly half of the girls' pie chart'
- '25 boys chose milk chocolate, but (whole number in the range 40-49) girls chose milk chocolate'
- 'There are twice as many girls as boys so a quarter of the girls' pie chart is the same number as half of the boys' pie chart, and it's more than a quarter of the girls'

- $\frac{1}{2}$ of 50 boys chose milk = 25

$$\frac{1}{4} \text{ of } 100 \text{ girls chose plain} = 25$$

and from the girls' pie chart it is obvious that more chose milk than plain'

- 'There are twice as many girls as boys and the sizes of the pie charts show this and the area for boys who like milk chocolate is smaller than the area for girls who like it'.

Do not accept vague or incomplete explanations, e.g:

- '100 is more than 50'
- 'More girls took part than boys so more girls like milk chocolate'
- 'The section for boys who like milk chocolate is smaller than the section for girls who like it'.

Commentary: The pie charts are presented using the mathematical convention that their areas are proportional to the numbers they represent, i.e. in this example the chart for girls has twice the area of the chart for boys.

[1]

13

Indicates all four correctly, ie:



! Incomplete response

For 2 marks, do not accept any box left blank

! Other indication

Accept any unambiguous indication, eg:

- 'Y' for ticked

2

or

Indicates any three correctly

1

[2]

14

(a) Answer in the range 30% to 36% inclusive.

1

(b) An explanation which recognises that both teams won half their games, but both teams played a different number of games, eg

- Half of 30 is not the same as half of 24
- Because of 30 e 15 but of 24 = 12
- Because 15 is more than 12

No mark is awarded for circling 'No' alone.

Do not accept vague or arbitrary explanation, eg

- The netball team played more games;
- Both teams won half their games;
- 30 is more than 24

If 'Yes' is circled but a correct unambiguous explanation is given, then award the mark.

U1

[2]

15

(a) Award **ONE** mark for an answer in the range £85 to £125, **inclusive**.

1

(b) Award **ONE** mark for the correct answer of £50
Accept any estimate in the range £45 to £55, **inclusive**.

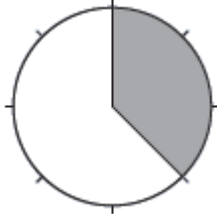
1

[2]

16

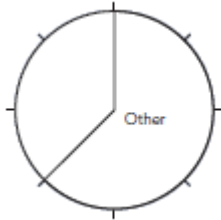
Divides the pie chart into two correct sectors and shades/labels correctly, eg

•



Accept unambiguous indication of shading/labelling, eg

•



! Given key ignored

*Condone incorrect shading provided their labelling is unambiguous
eg, accept*

•

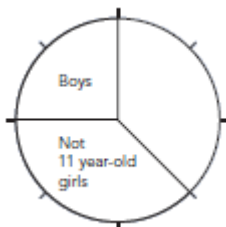


! Additional sectors shown

*Ignore provided the sector(s) for 11 year-old girls are clearly
indicated*

eg, accept

•



[1]