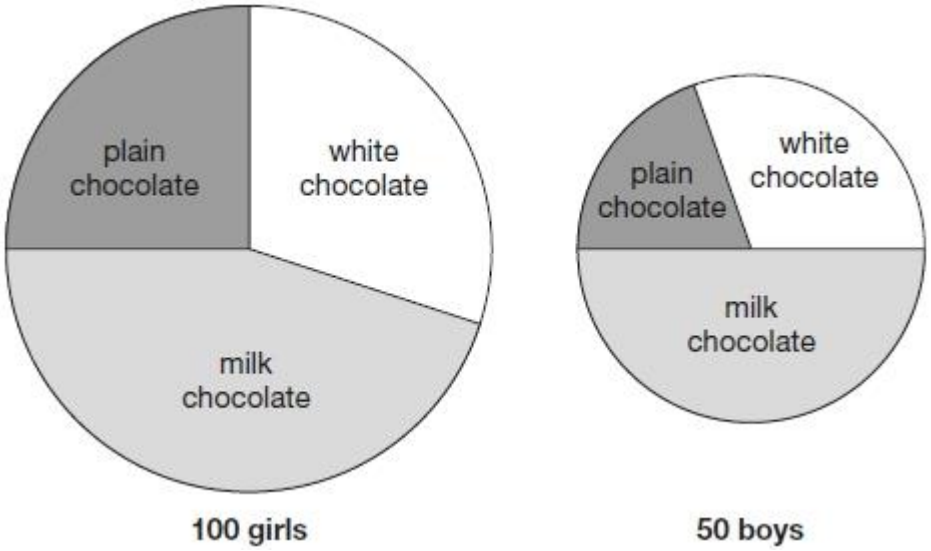
Q1.

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

These two pie charts show the results.

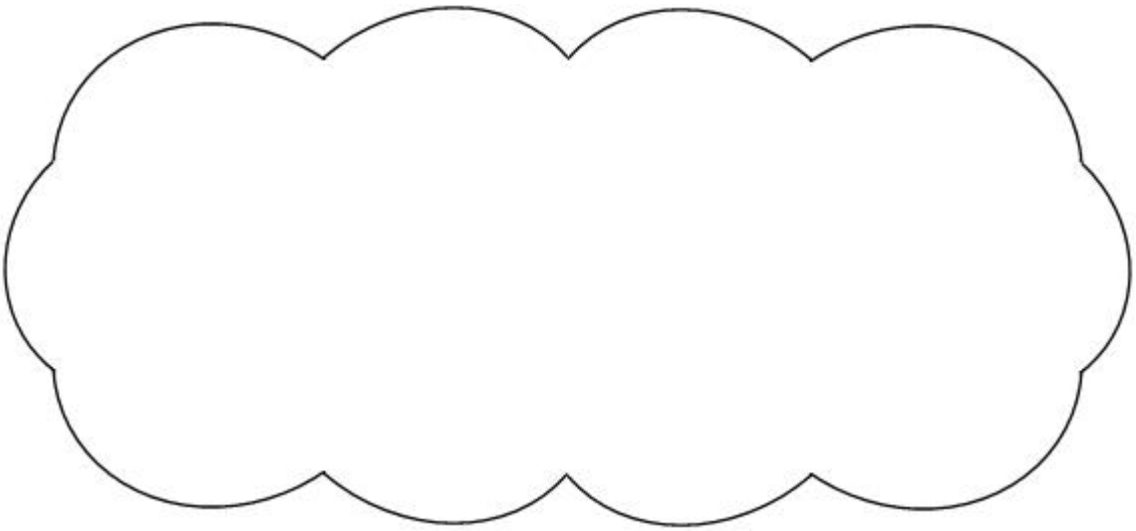


Dev says:

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

Dev is correct.

Explain how you know.

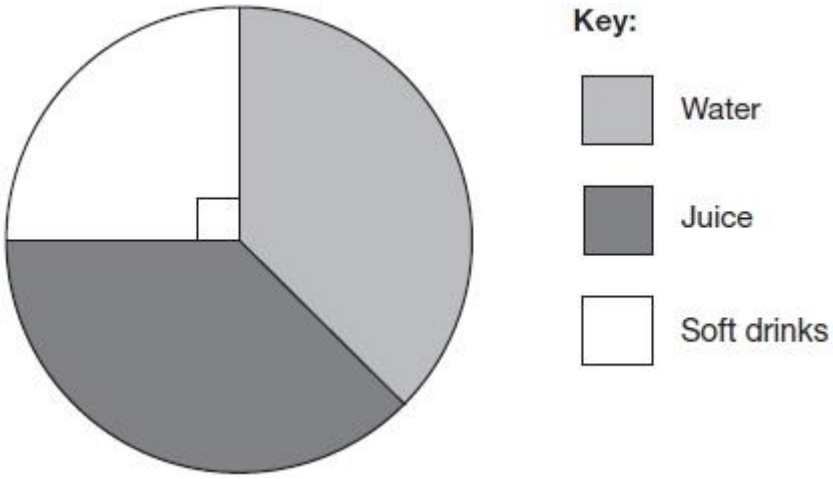


1 mark

Q2.

A shop sells drinks.

The pie chart compares the money a shop took last year for water, juice and soft drinks.



The shop took £8,264 for soft drinks.

Sales of water and juice were **equal**.

How much money did the shop take for **juice** last year?

Show your method

£

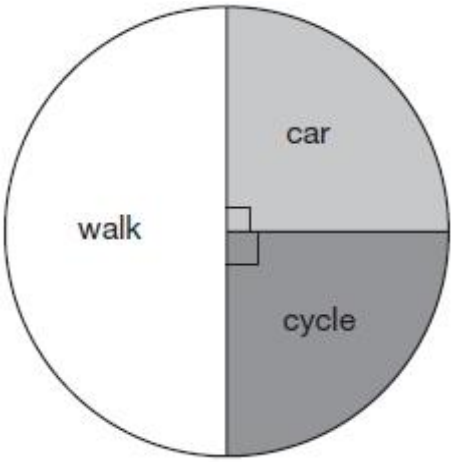
2 marks

Q3.

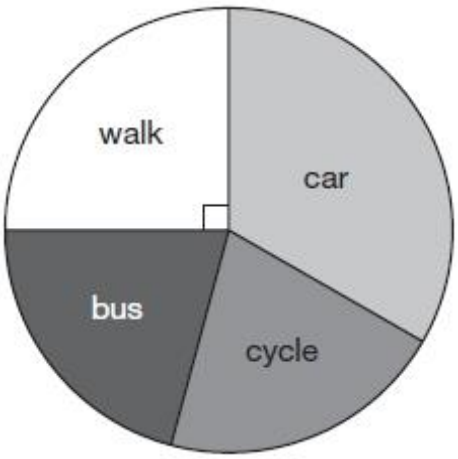
Megan asked children from two different schools,

'How do you travel to school?'

Here are her results.



Foxwood school
80 children



Midtown school
240 children

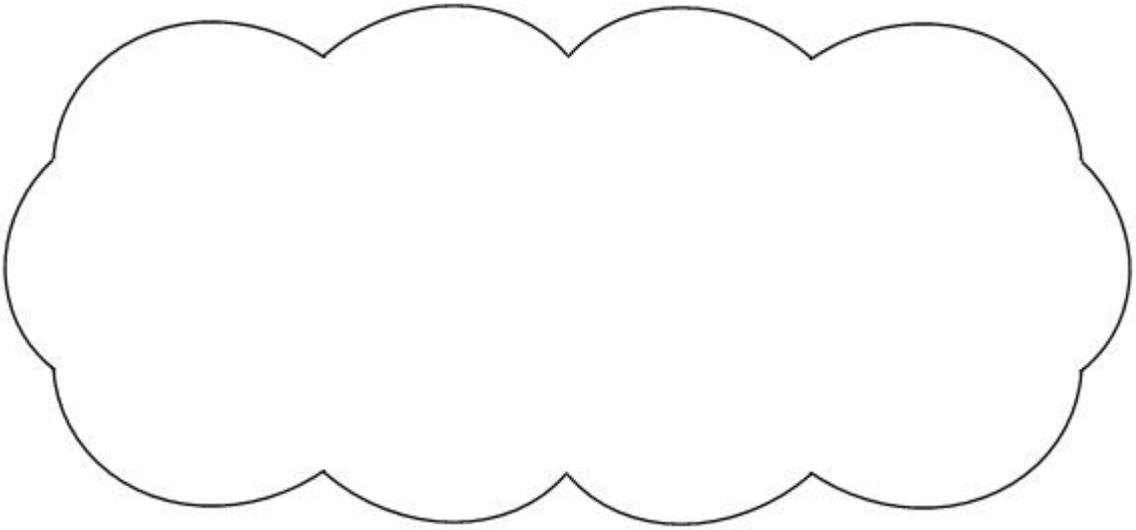
Megan says,

'The number of children walking to Foxwood school is more than the number walking to Midtown school.'

Is she correct?
Circle **Yes** or **No**.

Yes / No

Explain how you know.

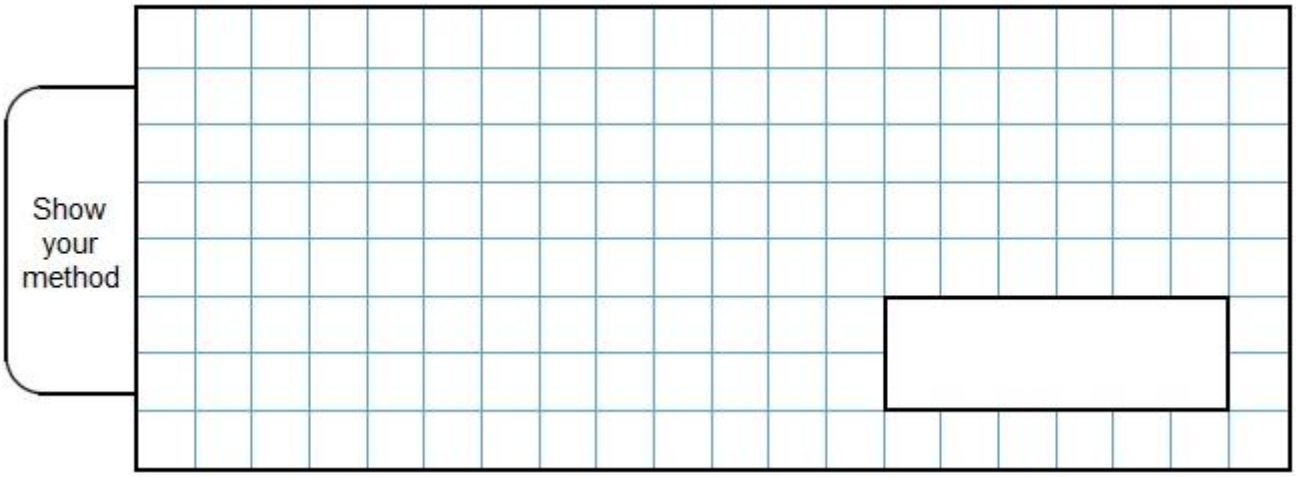


1 mark

At Midtown school, one third of children travel by car.

The number of children who cycle is the same as the number who go on the bus.

How many children **cycle** to Midtown school?

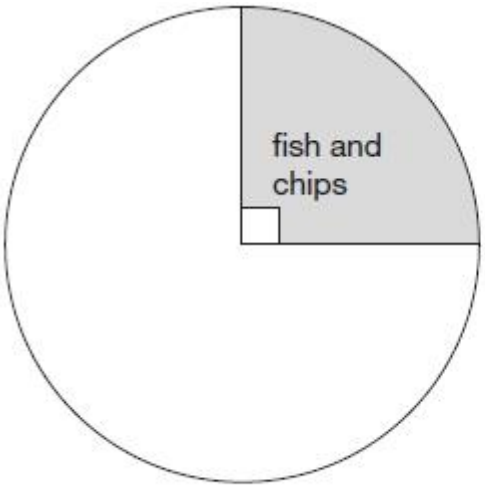


2 marks

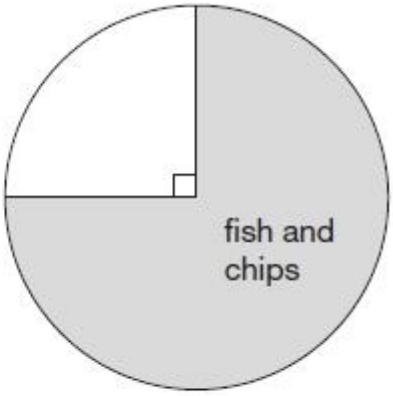
Q4.

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.

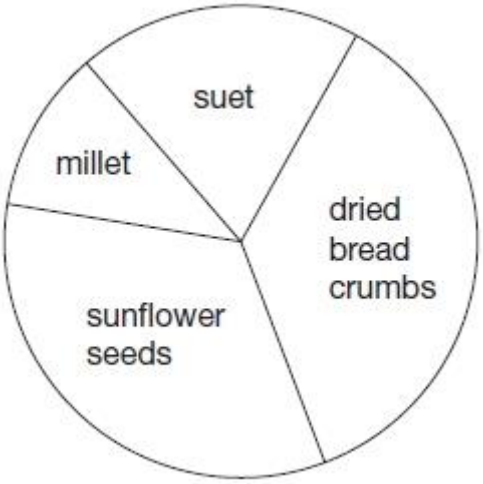
For each statement put a tick (✓) if it is true or a cross (✗) if it is false.

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

Q5.

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.

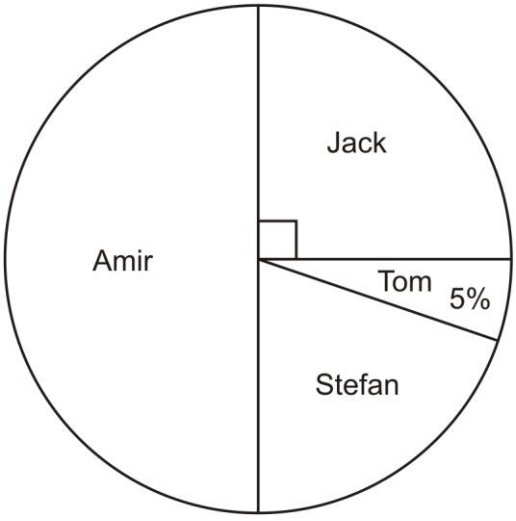
g

1 mark

Q6.

40 children predicted who would win the boys' race at sports day.

This pie chart shows their predictions.



What percentage of the children predicted that Stefan would win?

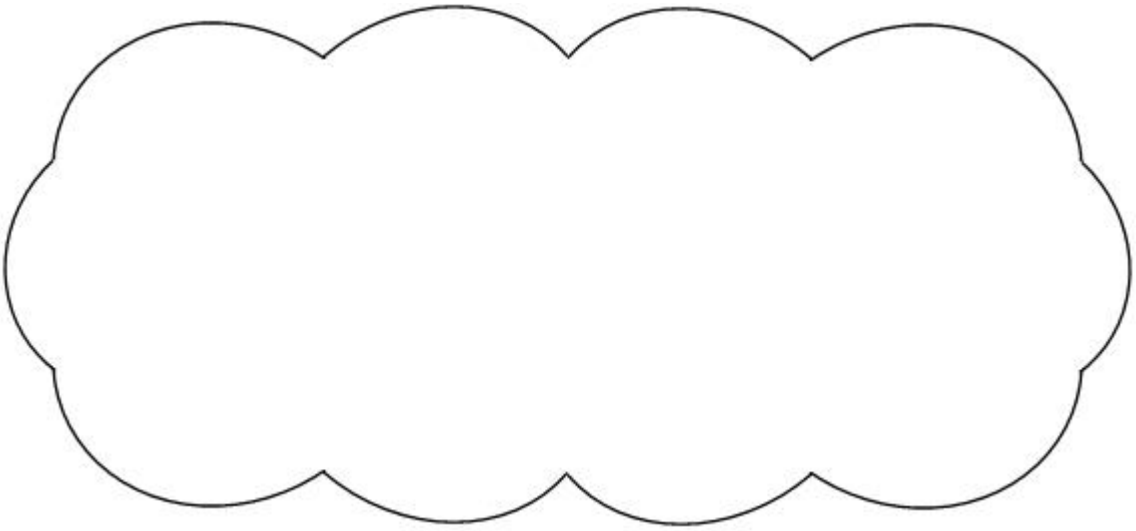
%

1 mark

10 children predicted the winner of the race **correctly**.

Who won the race?

Explain how you know.

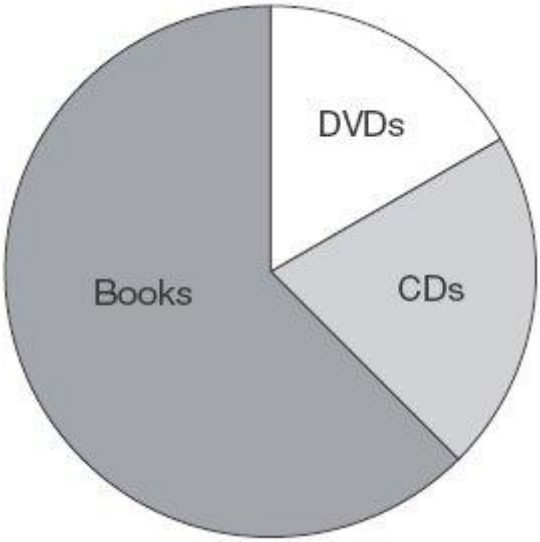


1 mark

Q7.

A shop sells books, CDs and DVDs.

This pie chart shows the sales of each in one week.



Estimate the **fraction** of the total sales that were DVDs.

1 mark

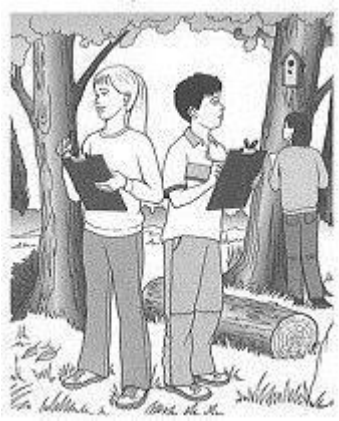
In this week, 200 **CDs** were sold.

Estimate how many books were sold.

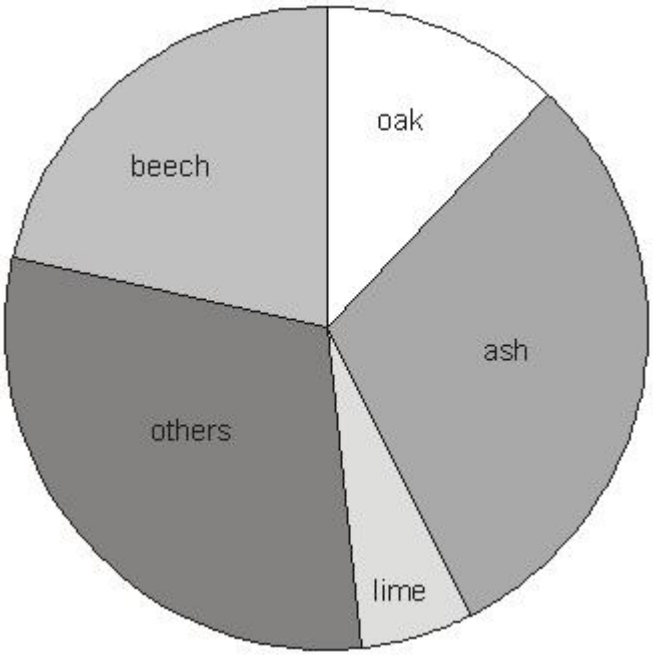
1 mark

Q8.

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.

1 mark

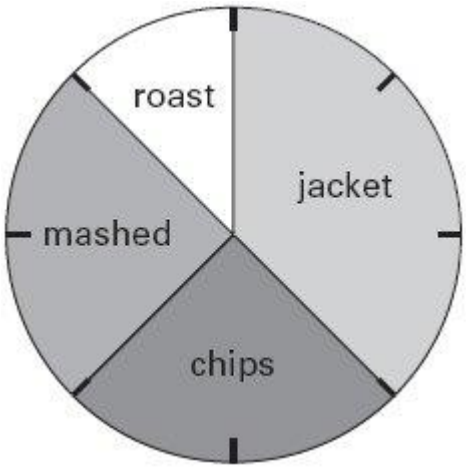
The children counted 60 **ash** trees.

Use the pie chart to estimate the **number** of **beech** trees they counted.

1 mark

Q9.

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



32 children took part in the survey.

Look at the four statements below.

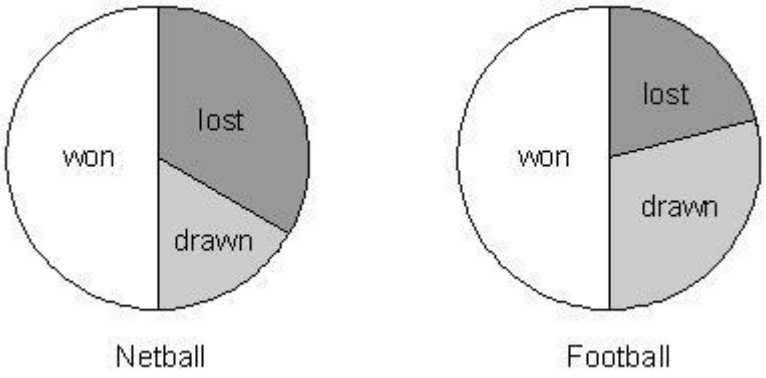
For each statement put a tick (✓) if it is **correct**.
Put a cross (✗) if it is **not correct**.

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.	☐

2 marks

Q10.

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



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.

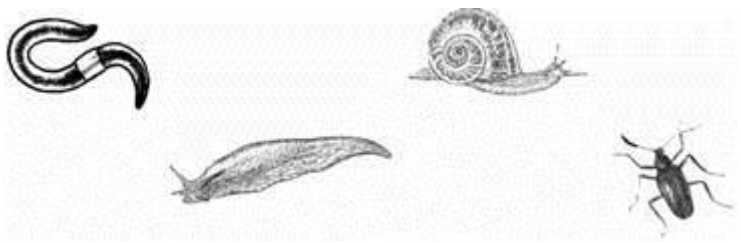
Yes / No

Explain how you know.

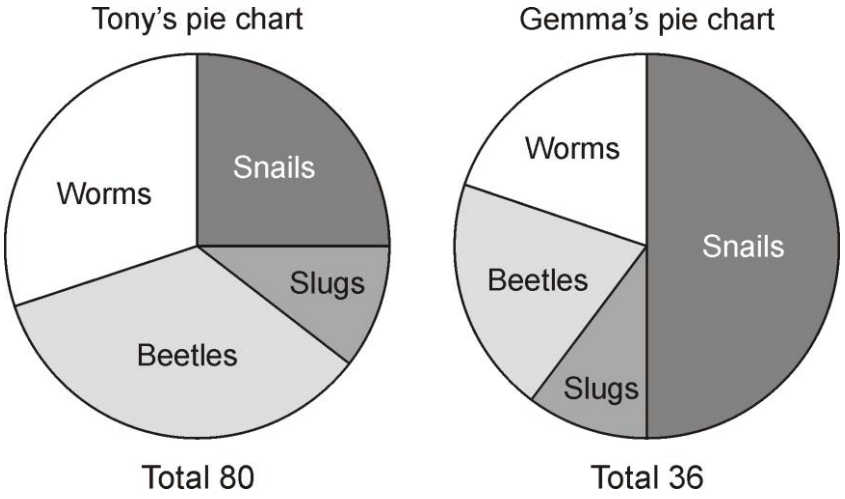
1 mark

Q11.

Tony and Gemma looked for snails, worms, slugs and beetles in their gardens.



They each made a pie chart of what they found.



Estimate the number of **worms** that **Tony** found.

1 mark

Who found more **snails**?

Circle **Tony** or **Gemma**. Tony / Gemma

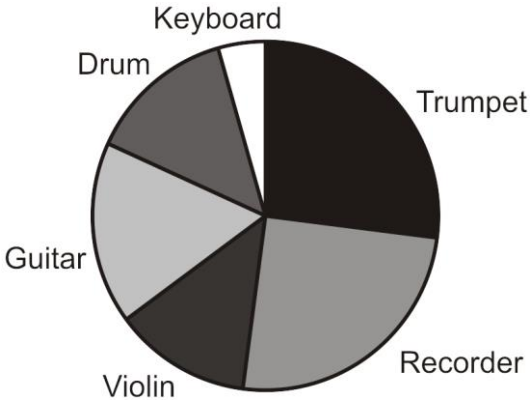
Explain how you know.

1 mark

Q12.

The Year 6 children in a school were asked to choose a musical instrument.

This is a pie chart of their choices.



Estimate what **fraction** of the children chose a **drum.**

1 mark

There are **80** children in Year 6.

Estimate the number of children who chose a **violin**.

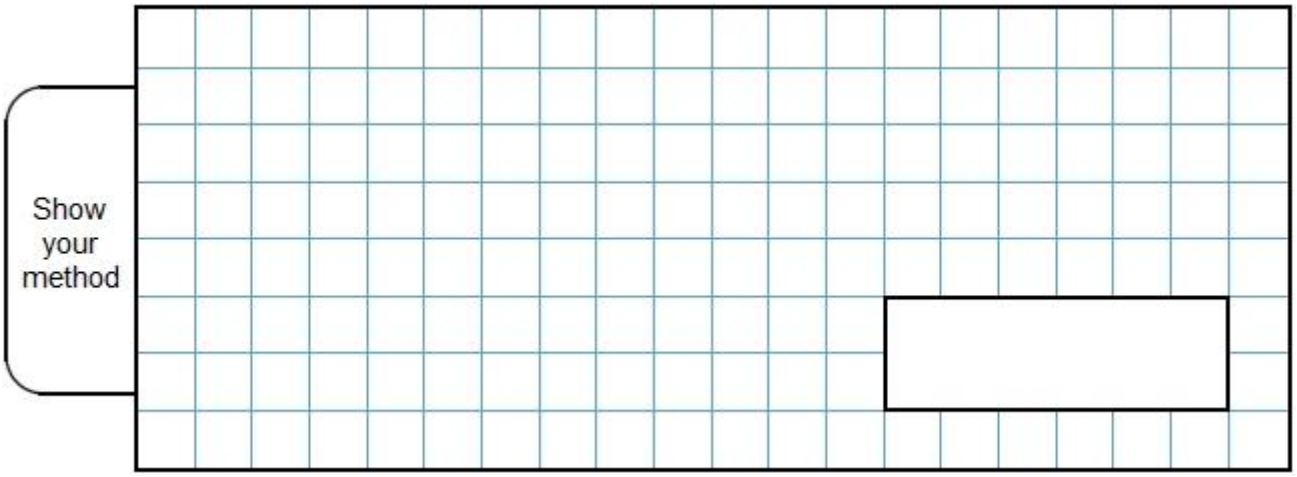
1 mark

Explain how you decided.

1 mark

15% of the 80 children chose a **guitar.**

How many children is this?

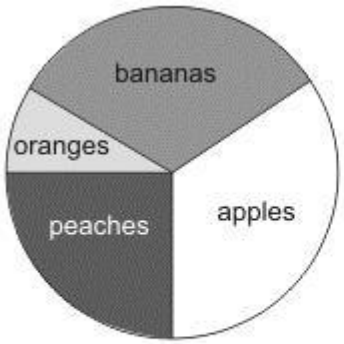


2 marks

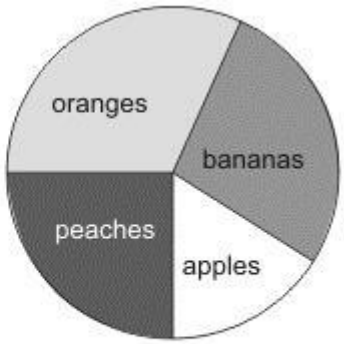
Q13.

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

Q14.

In a survey of how children travel to school, these were the results.

Transport	Walk	Cycle	Bus	Car
Percentage of children	25%	10%	45%	20%

Abby wants to make a pie chart to show the results.

Complete the table to show the angles of each section of the pie chart.

Transport	Walk	Cycle	Bus	Car
Percentage of children	25%	10%	45%	20%
Angle on pie chart	90°			

2 marks

Q1.

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

  $\frac{1}{4}$ of 100 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]

Q2.

Award **TWO** marks for the correct answer of £12396.

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg:

- £8264
  × 4
  £33056

OR

£33056
− 8264
£24792

£24792 ÷ 2

OR

■ £8264 ÷ 2 = £4132
£8264 + £4132

*Answer need not be obtained for the award of **ONE** mark*

Up to 2

[2]

Q3.

(a) An explanation that shows that one quarter of 240 is more than one half of 80, eg:

- 'Because only 40 are walking to Foxwood and 60 are walking to Midtown'
- 'Half of the people who walk is 40 and a quarter of the people who walk is 60'

No mark is awarded for circling 'No' alone.

***Do not** accept vague or incomplete explanations, eg:*

- *'Because at Foxwood it's a half and at Midtown it's a quarter'*
- *'Because there are 80 children at Foxwood and 240 children at Midtown'*

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

1
U1

(b) Award **TWO** marks for the correct answer of 50

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

240 ÷ 3 = 80

240 – 80 – 60 = 100

100 ÷ 2

*Answer need not be obtained for the award of **ONE** mark.*

Up to 2

[3]

Q4.

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]

Q5.

(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

[2]

Q6.

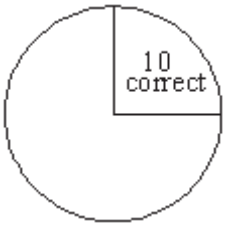
(a) 20%

***Do not** accept equivalent fractions or decimals.*

1

(b) An explanation which recognises that 25% chose Jack, eg:

- 'A quarter of the children guessed Jack and that is 10 out of 40'
- '10 out of 40 ($\frac{1}{4}$) were correct and the pie chart shows $\frac{1}{4}$ chose Jack'
- 'Half guessed Amir which is 20 and Jack is half of that which is 10'
- '10 guessed right and the pie chart shows three times as many chose the other runners'

- ‘25% chose Jack and 25% were correct’
- 

No mark is awarded for ‘Jack’ alone.

***Do not** accept vague or incomplete explanations, eg:*

- *‘There were 40 children altogether’*
- *‘Less than half chose Jack’*
- *‘Because Jack is the fastest’.*

If the answer to ‘Who won the race?’ is incorrect, but a correct, unambiguous explanation is given, then award the mark.

U1

[2]

Q7.

(a) Answer in the range $\frac{13}{100}$ to $\frac{1}{5}$ inclusive

Range includes $\frac{1}{6}$ *and* $\frac{1}{7}$

Accept decimals or percentages.
(0.13 to 0.2 inclusive)
(13% to 20 % inclusive)

1

(b) Answer in the range 500 to 800 inclusive

1

[2]

Q8.

(a) Answer in the range $\frac{1}{10}$ to $\frac{3}{20}$ inclusive.

Range includes $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$ *and* $\frac{1}{10}$

Accept decimals (0.1 to 0.15 inclusive) or percentages (10% - 15% inclusive).

1

(b) Answer in the range 40 to 50 inclusive.

1

[2]

Q9.

Award **TWO** marks for boxes ticked and crossed as shown:

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

*Accept alternative unambiguous indications such as **Y** or **N**.*

*For **TWO** marks, accept:*

Up to 2

[2]

Q10.

(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]

Q11.

(a) An answer in the range 21 to 26 inclusive.

***No mark** is awarded for an answer which is not a whole number.*

1

(b) An explanation which recognises that Tony's snails are a quarter of 80 and that Gemma's snails are half of 36, so that Tony found more, eg

- 'Tony found 20 and Gemma found only 18';
- 'Quarter of 80 is more than half of 36'.

No mark is awarded for circling the correct answer of 'Tony'.

***Do not** accept vague or arbitrary explanations, eg*

- *'Tony found loads more';*
- *'Gemma found more but Tony's amount is bigger'.*

Accept a correct, unambiguous explanation even if the wrong name is circled.

1

[2]

Q12.

(a) The answer is approximately 1/7. Accept any fraction, percentage or decimal in the range:

- 1/9 to 1/5, inclusive
- 11% to 20%, inclusive
- 0.11 to 0.2, inclusive

1

(b) The correct answer is 10. Accept any number in the range 8 to 12, **inclusive.**

1

(c) The explanation should make reference, in some form, to appropriate fractional estimates, eg:

- "Because it looks like a quarter of a half and that's 10."
- "I thought the violin looked like half the trumpet and that was about a quarter."
- "I decided this because 1/4 was 20 children, so I halved 20 and made it 10."

Explanations which lack specific reference to appropriate fractions should not be awarded the mark, eg:

- *"Because it's a bit less than the trumpet."*
- *"Because there are 6 parts to the pie chart."*

1

(d) Award **TWO** marks for the correct answer of 12, even if there are errors in the working.

Award **ONE** mark if the answer is incorrect, but there is evidence of an attempt to calculate 15% of 80 by any method, eg:

- 15/100 × 80 = (incorrect answer given)

- 10% of 80 = 8, 5% is 4, so 15% of 80 = (incorrect answer given)
- 1% of 80 = 80/100 = 4/5, so 15% = 4/5 × 15 = (incorrect answer given)

The writing of "15/100 × 80" (or equivalent) ***alone*** *is* ***not*** *sufficient evidence of an attempt to calculate.*

Up to 2

[5]

Q13.

(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]

Q14.

Award **TWO** marks for the three correct measurements as shown:

Transport	**Walk**	**Cycle**	**Bus**	**Car**
Percentage of children	25%	10%	45%	20%
Angle on pie chart	90°	**36°**	**162°**	**72°**

Award **ONE** mark for any two correct.

[2]