





## FULL MODEL ANSWERS

### Q1. NON-CALCULATOR

The table shows information about the numbers of fruit trees in an orchard.

Apple tree	Pear tree	Plum tree
45	20	25

(a) The pictogram shows this information. Complete the key for the pictogram.

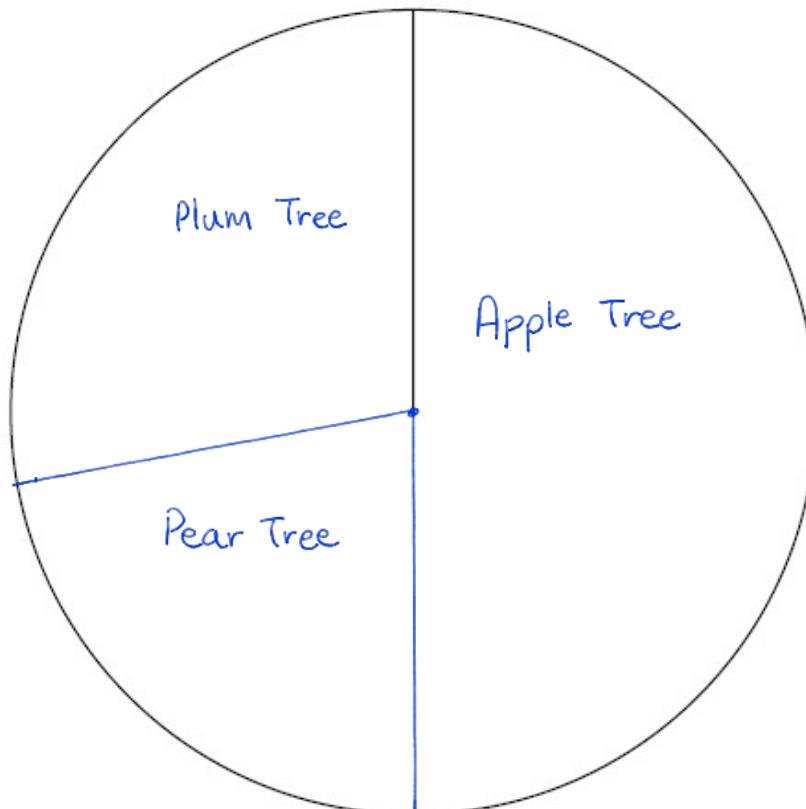
Apple tree		Key:  represents <u>5</u> trees
Pear tree		
Plum tree		

(b) There are 90 fruit trees in the orchard.

$$360^\circ \div 90 = 4$$

Apple tree	Pear tree	Plum tree
$45 \times 4$	$20 \times 4$	$25 \times 4$
$180^\circ$	$80^\circ$	$100^\circ$

Draw an accurate pie chart for this information.



(3)  
(Total for question = 4 marks)

**Q2. NON-CALCULATOR**

Year 9 students from Halle School were asked to choose one language to study.

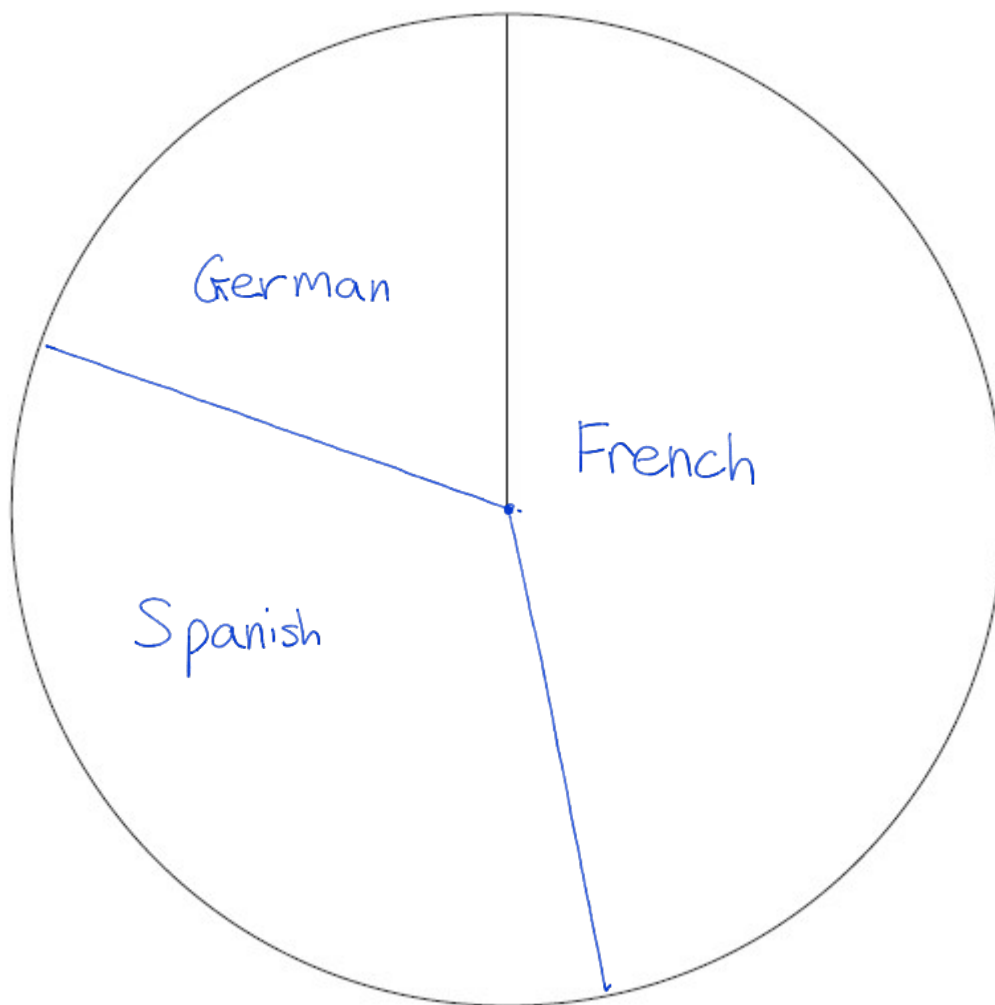
The table shows information about their choices.

$$360^\circ \div 120 = 3$$

Language	Number of students	
French	$56 \times 3$	$168^\circ$
Spanish	$40 \times 3$	$120^\circ$
German	$24 \times 3$	$72^\circ$

TOTAL: 120

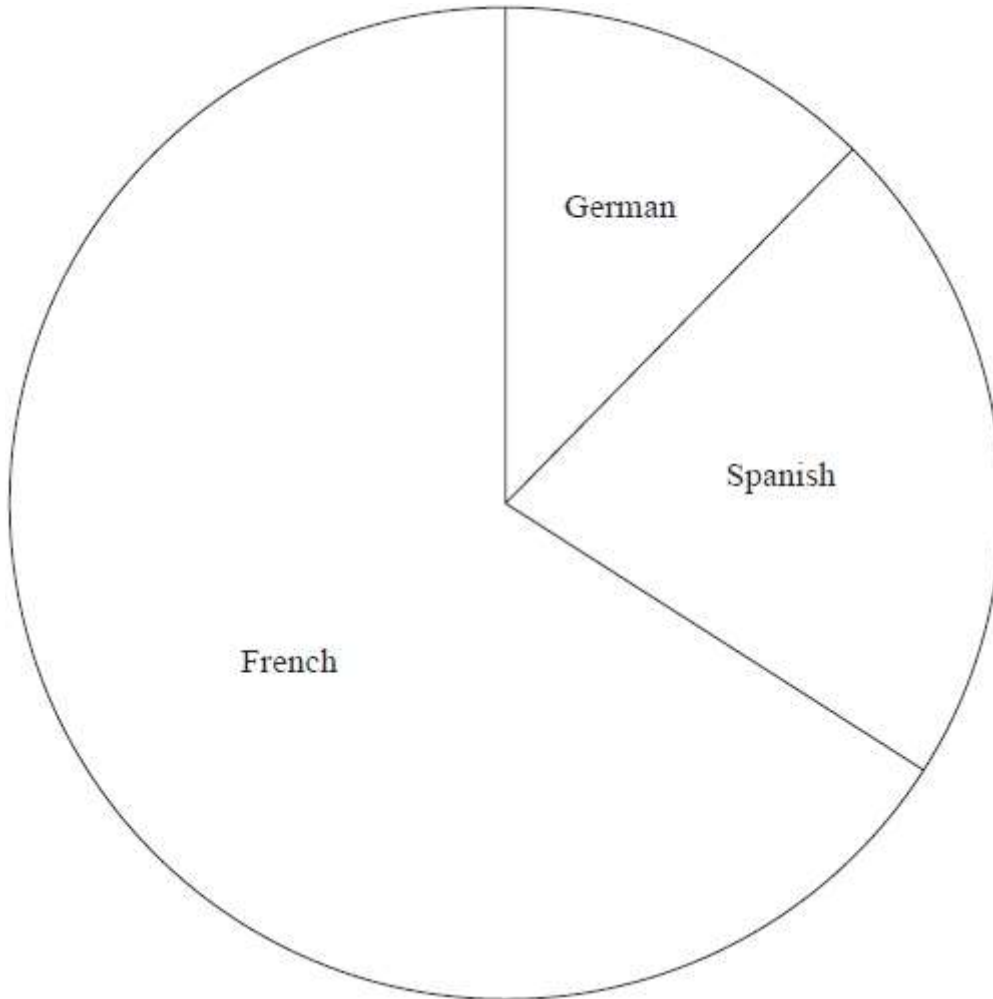
(a) Draw an accurate pie chart to show this information.



(3)

Year 9 students from Lowry School were also asked to choose one language to study.

This accurate pie chart shows information about their choices.



Shameena says,

"The pie chart shows that French was chosen by more Year 9 students at Lowry School than at Halle School."

(b) Is Shameena right?

You must explain your answer.

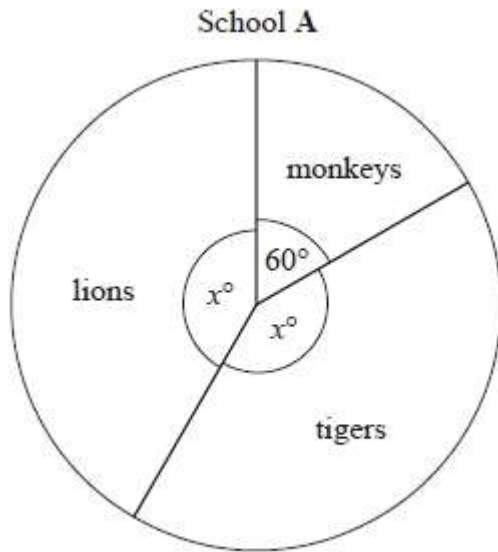
Shameena was not necessarily correct.  
The number of Y9 pupils at Lowry School could  
be a lot less than the Y9 pupils at Halle.

(1)

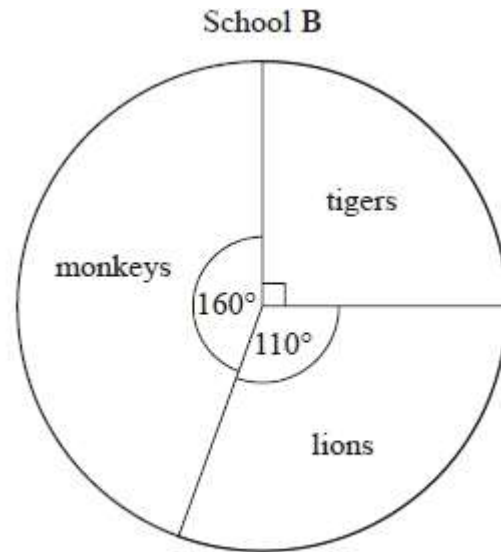
(Total for question = 4 marks)

**Q3. NON-CALCULATOR**

The pie charts show information about the favourite animal of each student at school **A** and of each student at school **B**.



There are 480 students at school A.



There are 760 students at school B.

Henry says,

"The same number of students at each school have tigers as their favourite animal."

Is Henry correct?

You must show how you get your answer.

$$\begin{aligned} \text{Angle for tigers} &= \frac{360 - 60}{2} \\ &= 150 \end{aligned}$$

$$\begin{aligned} \text{Number of tigers} &= \frac{150}{360} \times 480 \\ &= 200 \end{aligned}$$

$$\begin{aligned} \text{Number of tigers} &= \frac{90}{360} \times 760 \\ &= 190 \end{aligned}$$

Henry is wrong.

(Total for question = 4 marks)

**Q4. CALCULATOR ALLOWED**

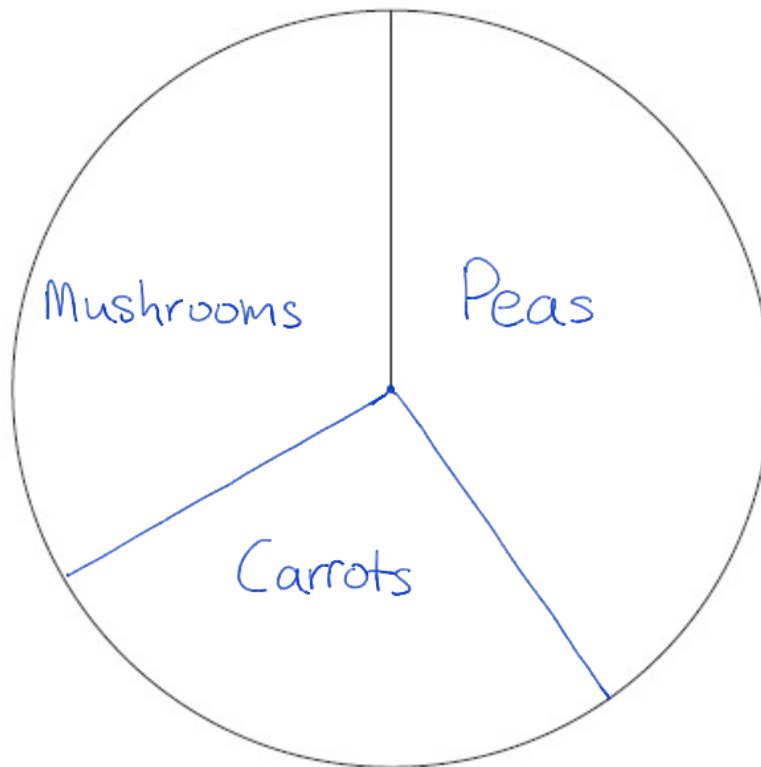
Joan asked each of 60 people to name their favourite vegetable.

$$360^\circ \div 60 = 6$$

Here are her results.

Vegetable	Frequency	
Peas	24	$24 \times 6 = 144^\circ$
Carrots	16	$16 \times 6 = 96^\circ$
Mushrooms	20	$20 \times 6 = 120^\circ$
<b>TOTAL:</b>		<b>60</b>

Draw an accurate pie chart for her results.



(Total for question = 3 marks)

**Q5. CALCULATOR ALLOWED**

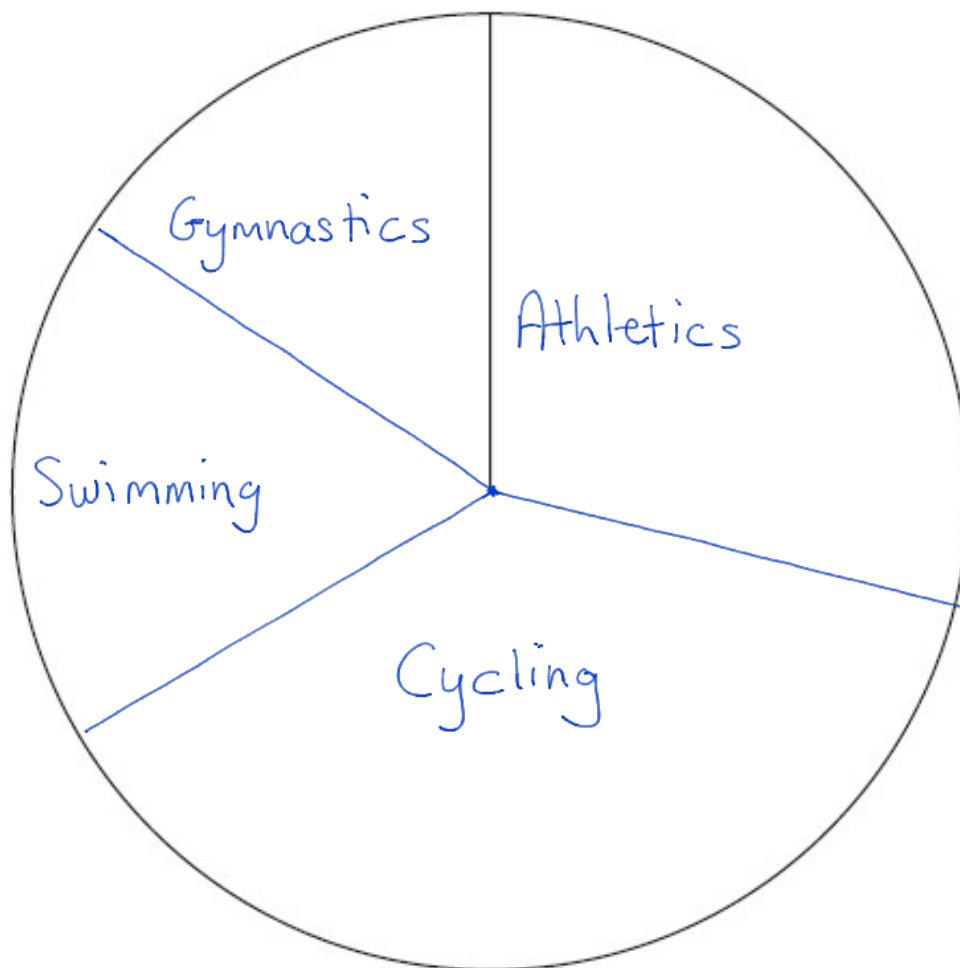
Sharon asked each of her friends to name their favourite Olympic sport.

The table below shows information about their answers.

Sport	Frequency
athletics	$13 \times 8 = 104^\circ$
cycling	$17 \times 8 = 136^\circ$
swimming	$8 \times 8 = 64^\circ$
gymnastics	$7 \times 8 = 56^\circ$

Draw an accurate pie chart for this information. **TOTAL: 45**

$$360^\circ \div 45 = 8$$



(Total for question = 3 marks)

**Q6. CALCULATOR ALLOWED**

A group of football fans were asked what their half time snack was.

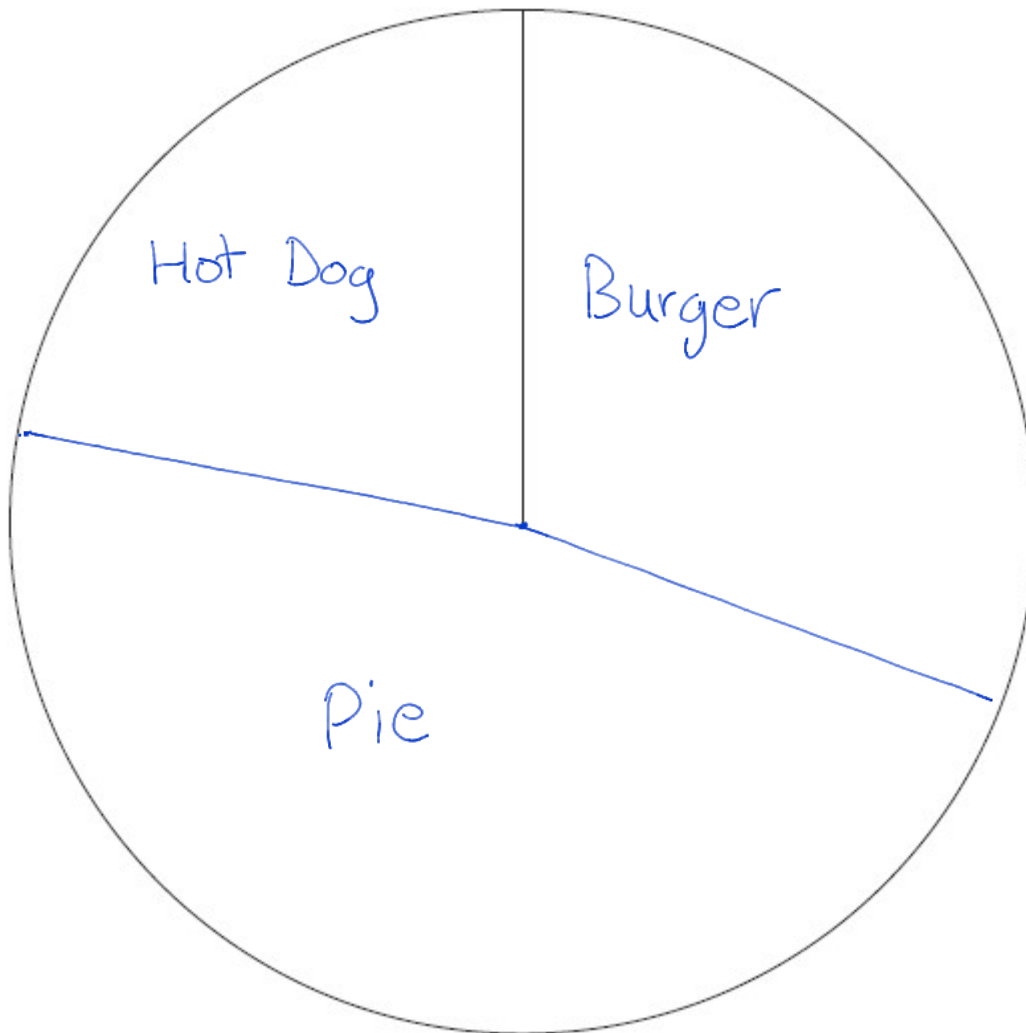
The table below gives information about their answers.

$$360 \div 36 = 10$$

Snack	Number of fans
burger	$11 \times 10 = 110^\circ$
pie	$17 \times 10 = 170^\circ$
hot dog	$8 \times 10 = 80^\circ$

Draw an accurate pie chart for this information.

TOTAL: 36



(Total for question = 3 marks)

**Q7. CALCULATOR ALLOWED**

60 students were asked how they get to school. The table shows the results.

	Bus	Walk	Car	Bicycle
Number of students	15	27	12	6

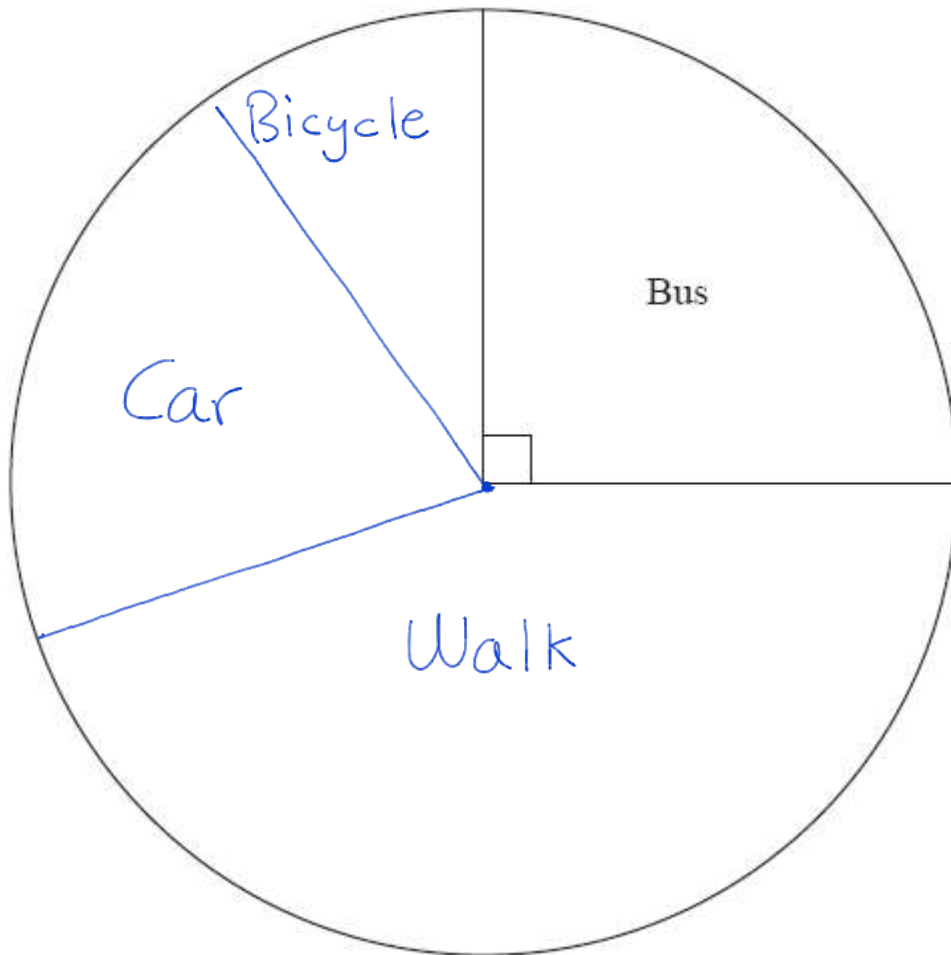
(a) What fraction of the 60 students did not walk to school?

$$\frac{60-27}{60} = \frac{33}{60}$$

$$\frac{11}{20}$$

(2)

(b) Complete the pie chart for the information in the table.



$$360^\circ \div 60 = 6$$

(4) (Total for question = 6 marks)

$$15 \times 6 = 90^\circ$$

$$27 \times 6 = 162^\circ$$

$$12 \times 6 = 72^\circ$$

$$6 \times 6 = 36^\circ$$



**Q8. CALCULATOR ALLOWED**

Rachel carried out a survey of 10 people to find out the type of fruit they like best. The table gives information about her results.

Type of fruit	Number of people
apple	2
banana	5
orange	3

(a) Which type of fruit is the mode?

most common

Banana

(1)

In Rachel's survey, 2 out of 10 people like apples best.

(b) Write 2 out of 10 as a percentage.

$$\frac{2 \times 10}{10 \times 10}$$

$$\frac{20}{100}$$

20

%

(1)

Pete also carried out a survey to find out the type of fruit people like best.

He asked 30 people which type of fruit they like best.

He drew this pie chart for his results.

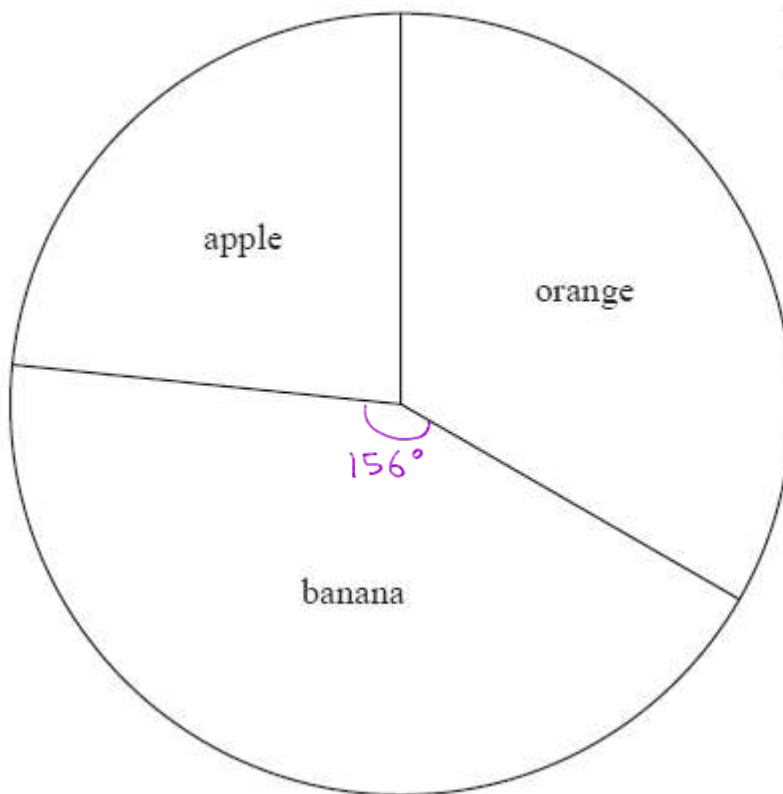


Diagram accurately drawn

A smaller proportion of people like bananas best in Pete's survey than in Rachel's survey.

(c) Explain how Pete's pie chart and Rachel's table show this.

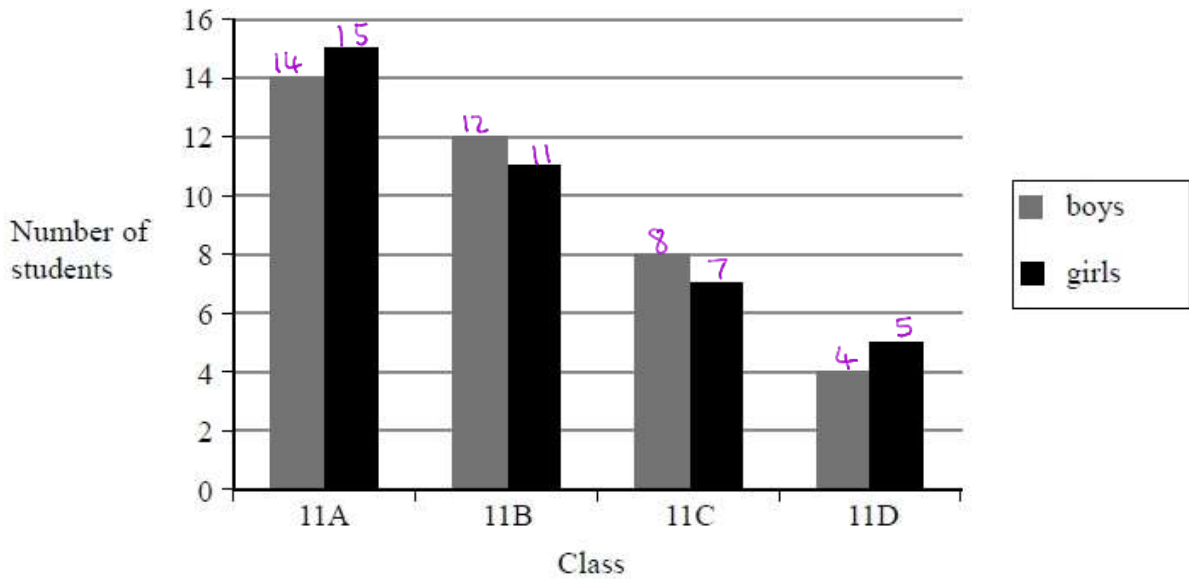
In Rachel's survey,  $\frac{5}{10}$  people liked bananas - this is half. In Pete's survey, less than half pie chart is representing bananas.

(2)

(Total for question = 4 marks)

**Q9. CALCULATOR ALLOWED**

The bar chart gives information about the numbers of students in the four Year 11 classes at Trowton School.



(a) What fraction of the students in class 11A are girls?

$$\frac{15}{14+15} = \frac{15}{29}$$

(2)

Shola says "There are more boys than girls in Year 11 in Trowton School."

(b) Is Shola correct? You must give a reason for your answer.

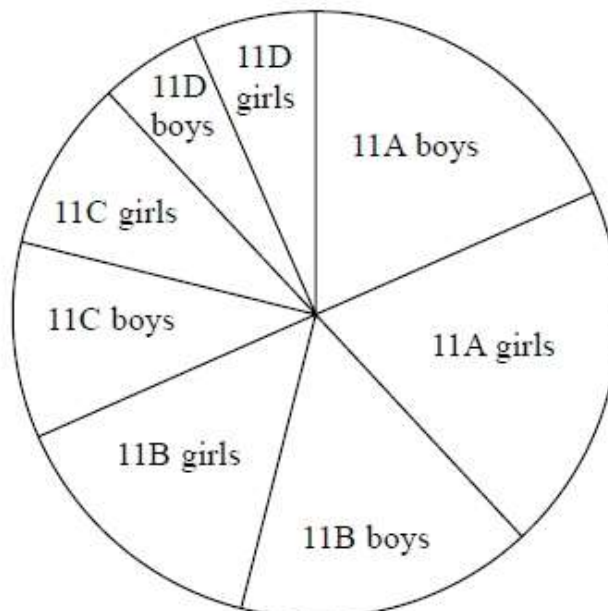
$$\begin{aligned} \text{Girls: } & 15 + 11 + 7 + 5 = 38 \\ \text{Boys: } & 14 + 12 + 8 + 4 = 38 \end{aligned}$$

No. There are equal numbers of boys and girls.

(2)

The pie chart gives information about the 76 students in the same four Year 11 classes at Trowton School.

**Number of students in Year 11 of Trowton School**



Tolu says, "It is more difficult to find out the numbers of students in each class from the pie chart than from the bar chart."

(c) Is Tolu correct? You must give a reason for your answer.

Tolu is correct. Since there is no total given for the pie chart, it's impossible to find individual values.

(1)

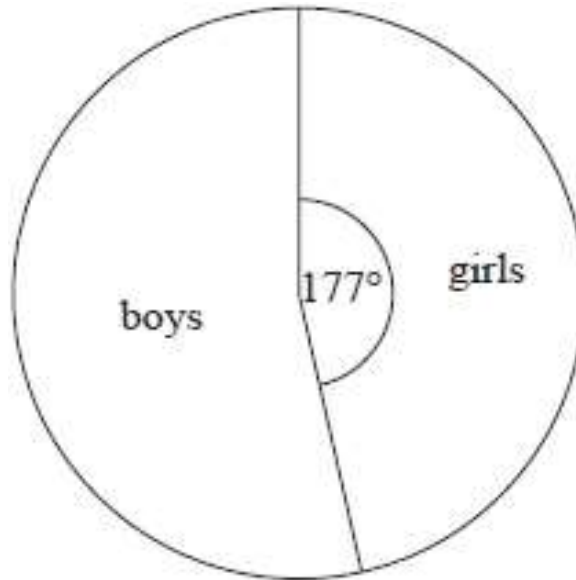
(Total for question = 5 marks)

**Q10. CALCULATOR ALLOWED**

There are 240 students in Year 7 at a school.

The pie chart shows the proportion of boys and the proportion of girls in Year 7

$$240 - 118 = 122$$



$$\begin{aligned} \text{Girls: } & \frac{177}{360} \times 240 \\ & = 118 \end{aligned}$$

There are 8 more girls in Year 8 than in Year 7 118

There are 32 fewer boys in Year 8 than in Year 7

Andy draws a pie chart to show the proportion of boys and the proportion of girls in Year 8

Work out the angle of the sector in Andy's pie chart that represents girls.

Boys

$$122 - 32 = 90$$

Girls

$$118 + 8 = 126$$

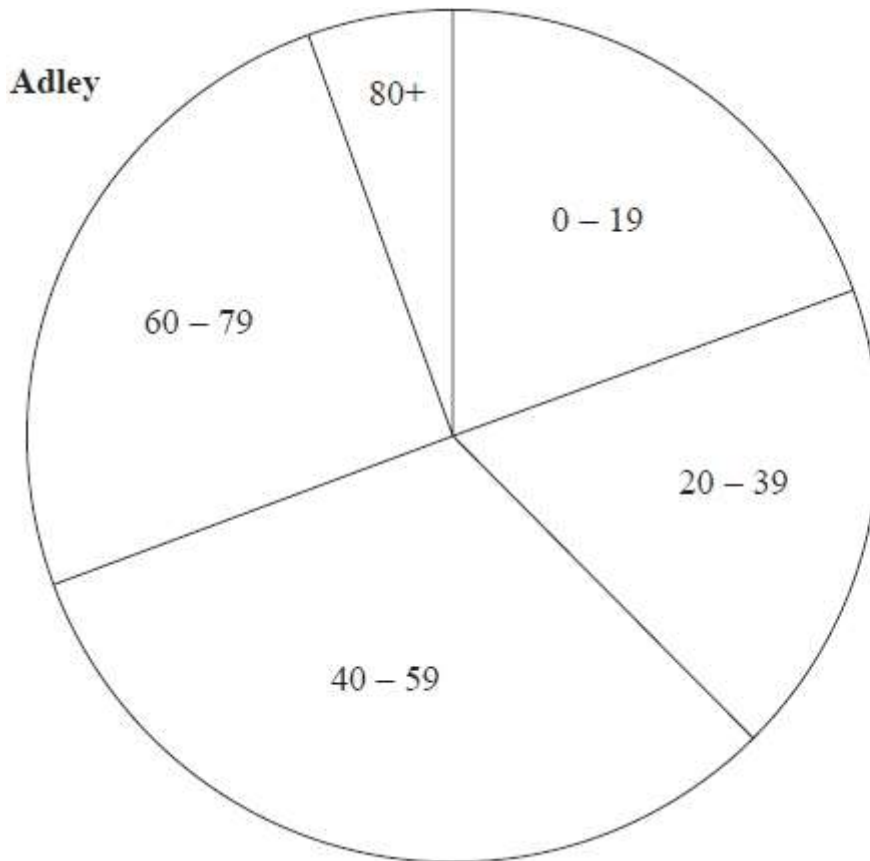
$$\frac{126}{90 + 126} \times 360$$

210 °

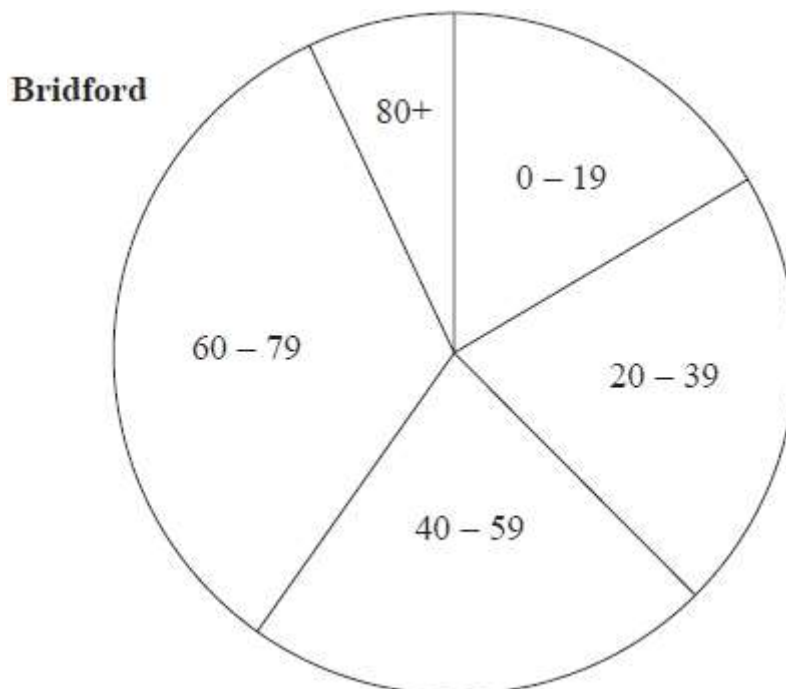
(Total for question = 4 marks)

**Q11. CALCULATOR ALLOWED**

The pie charts give information about the ages, in years, of people living in two towns, Adley and Bridford.



Diagrams accurately drawn



The ratio of the number of people living in Adley to the number of people living in Bridford is given by the ratio of the areas of the pie charts.

What proportion of the total number of people living in these two towns live in Adley and are aged 0 – 19?

Give your answer correct to 3 significant figures.

(Depends on printing size)

(Total for question = 3 marks)