Name ANSWERS	Class

MATHS TEACHER HUB

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Pie charts

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**
- If the question is a **1F** question you are not allowed to use a calculator.
- If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

5 60 students were asked how they get to school.

The table shows the results.

	Bus	Walk	Car	Bicycle
Number of students	15	27 ×6	12 ×6	6
		162°	72°	36°

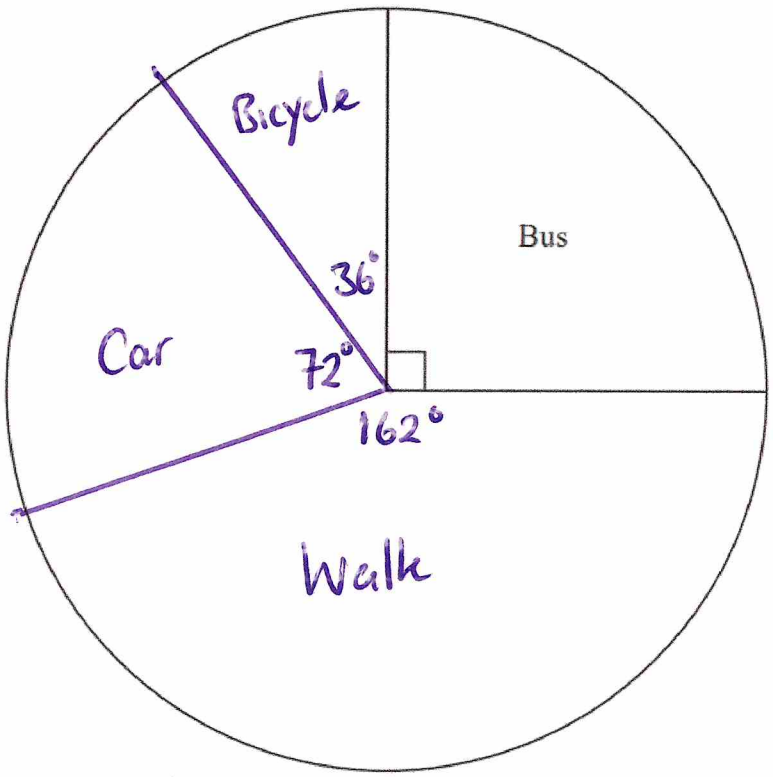
(a) What fraction of the 60 students did **not** walk to school?

$\frac{33}{60} = \frac{11}{20}$

(2)

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

$\frac{360}{60} = 6°$



(4)

(Total for Question 5 is 6 marks)

8 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?

banana

(1)

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

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

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.

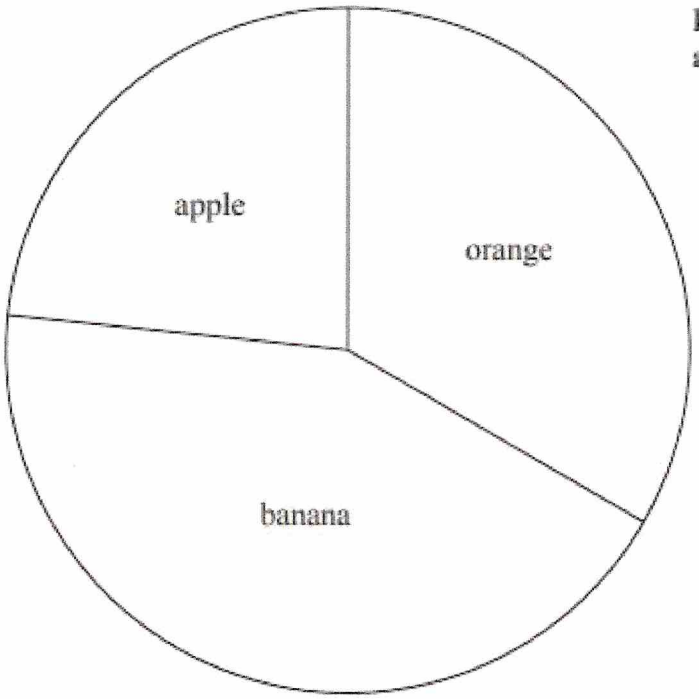


Diagram **accurately** drawn

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.

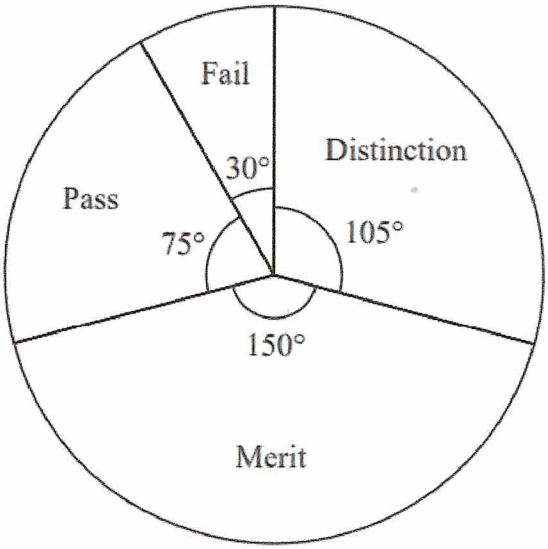
In Rachels table $\frac{5}{10}$ people liked banana, which would be 180°, whereas Petes' pie chart is less than 180° for banana

(2)

Specimen 2 – Paper 2F **(Total for Question 8 is 4 marks)**

12 Some students took a guitar exam.

The pie chart shows information about the grades the students got.



(a) Write down the modal grade.

Merit

(1)

7 students got distinction.

(b) Work out the total number of students who took the guitar exam.

105° = 7 people) ÷7
15° = 1 person
×24 (360° = 24 people

24

(3)

(Total for Question 12 is 4 marks)

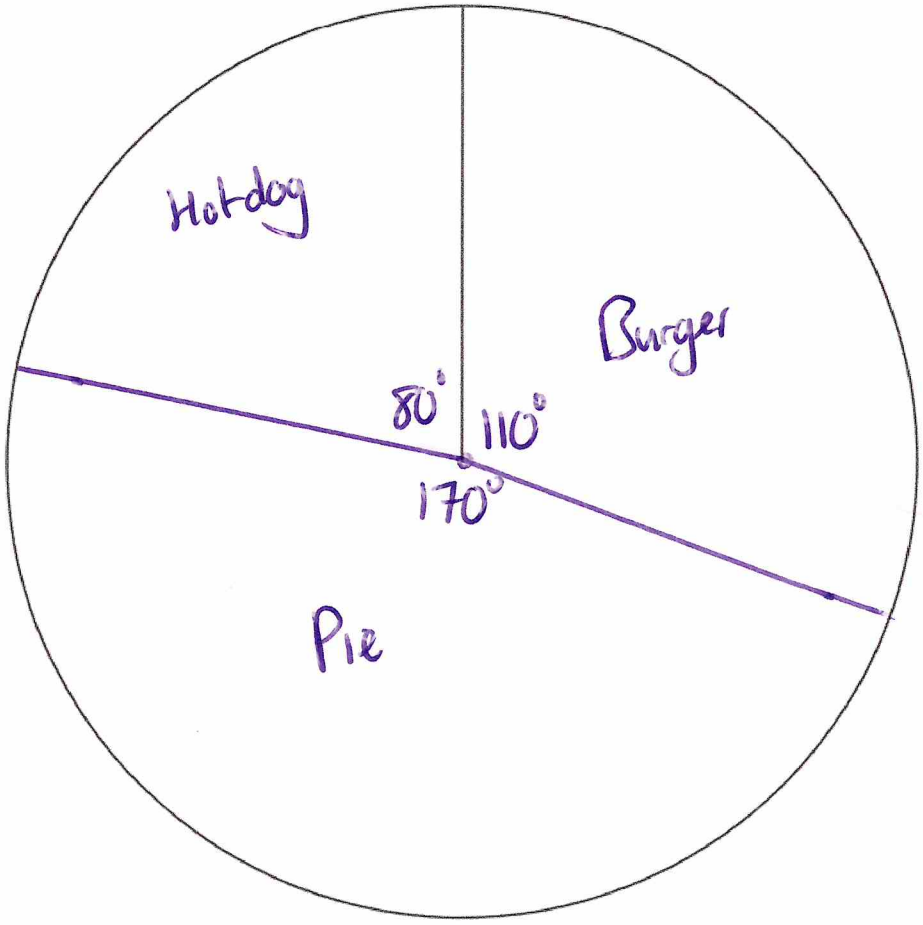
12 A group of football fans were asked what their half time snack was.

The table below gives information about their answers.

$\frac{360}{36} = 10°$

Snack	Number of fans	
burger	11 $\times 10$	$= 110°$
pie	17 $\times 10$	$= 170°$
hot dog	8 $\times 10$	$= 80°$
	36	

Draw an accurate pie chart for this information.



(Total for Question 12 is 3 marks)

14 The table gives information about the drinks people ordered in a cafe.

Drink	Number of people
Coffee	30
Hot chocolate	10
Tea	50

$\frac{360}{90} = 4°$

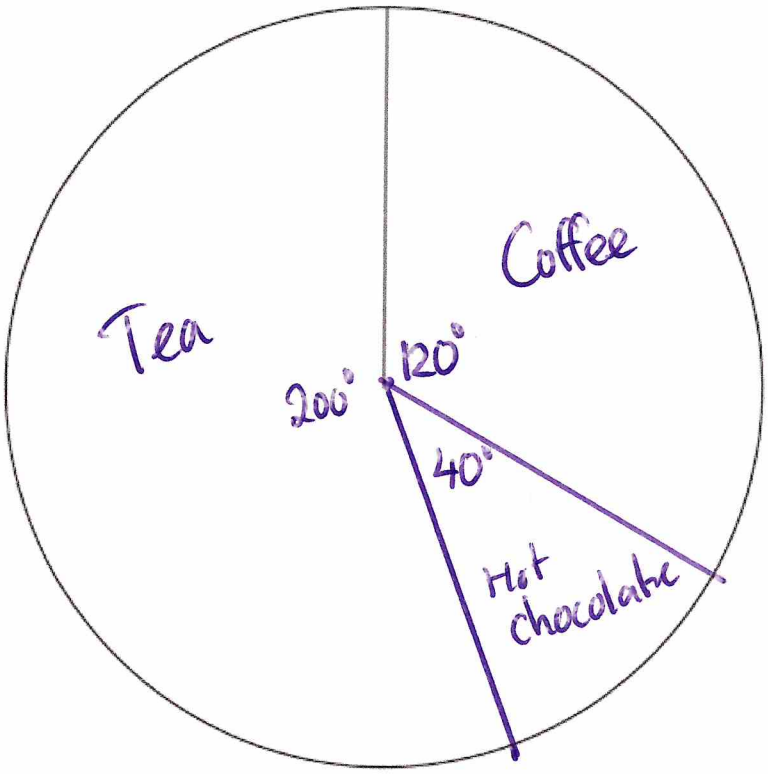
30 × 4 = 120°

10 × 4 = 40°

50 × 4 = 200°

90

Draw an accurate pie chart for this information.



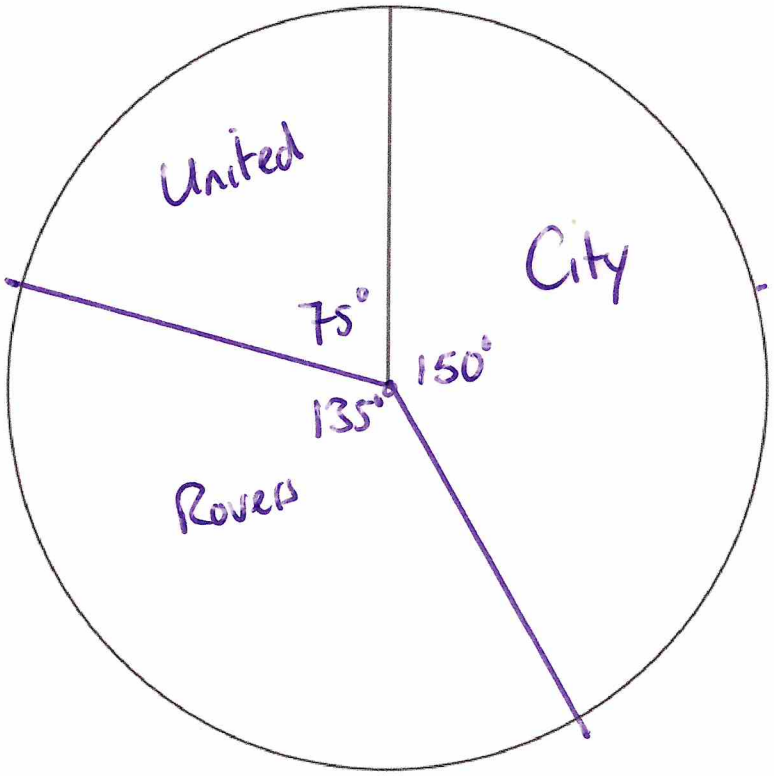
(Total for Question 14 is 3 marks)

14 The table gives information about the number of goals scored by each of three teams.

$\frac{360}{120} = 3°$

Team	Number of goals	
City	50 x 3	= 150°
Rovers	45 x 3	= 135°
United	25 x 3	= 75°
	120	

Draw an accurate pie chart for this information.



(Total for Question 14 is 3 marks)

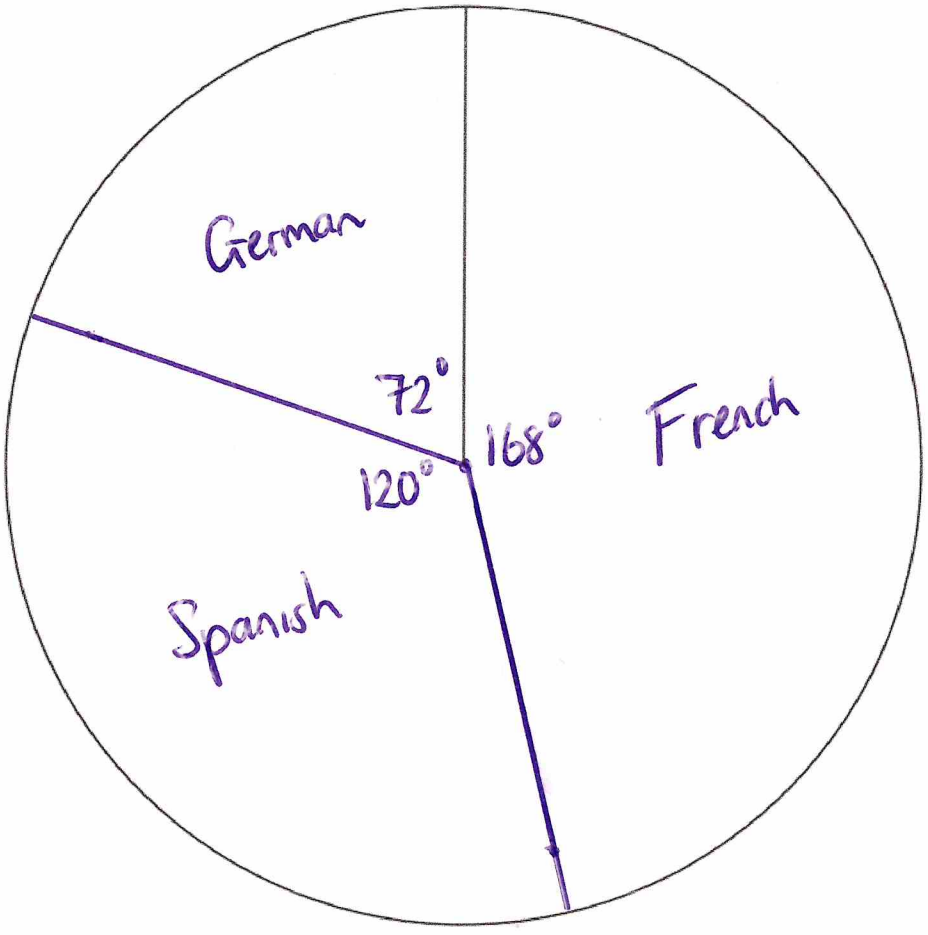
14 Year 9 students from Halle School were asked to choose one language to study.

The table shows information about their choices.

$\frac{360}{120} = 3°$

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

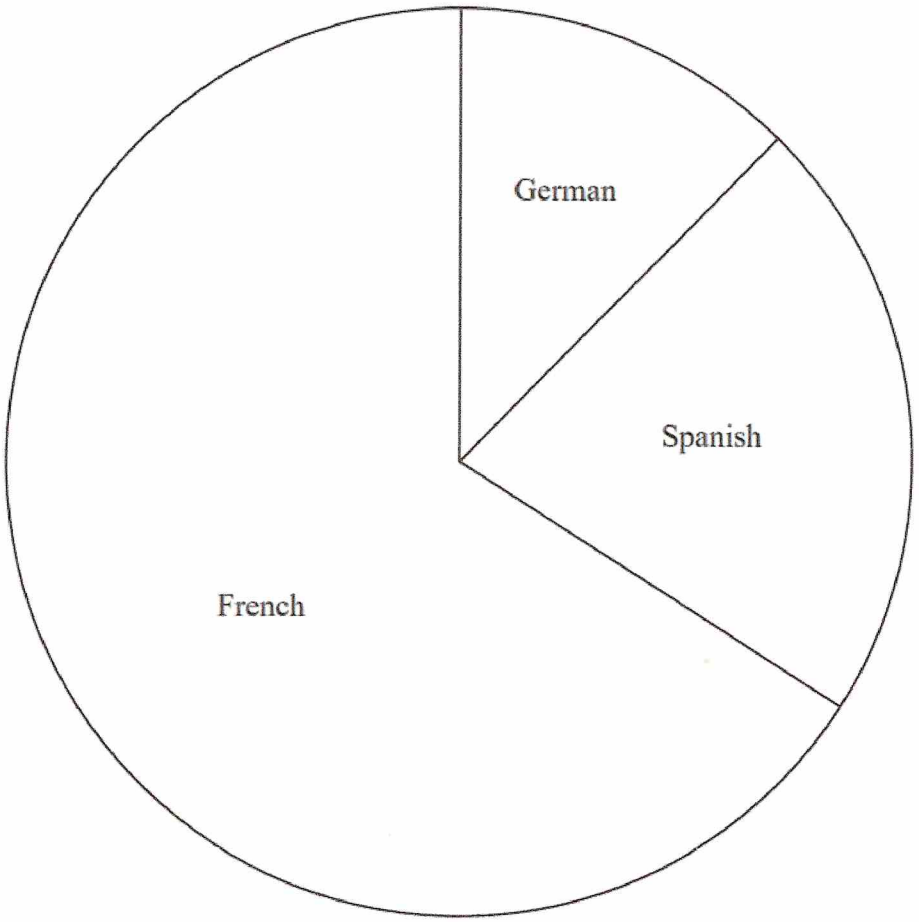
(a) Draw an accurate pie chart to show this information.



(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.

We do not know how many students there are in the Lowry pie chart, so we dont know how many are in each sector.

(1)

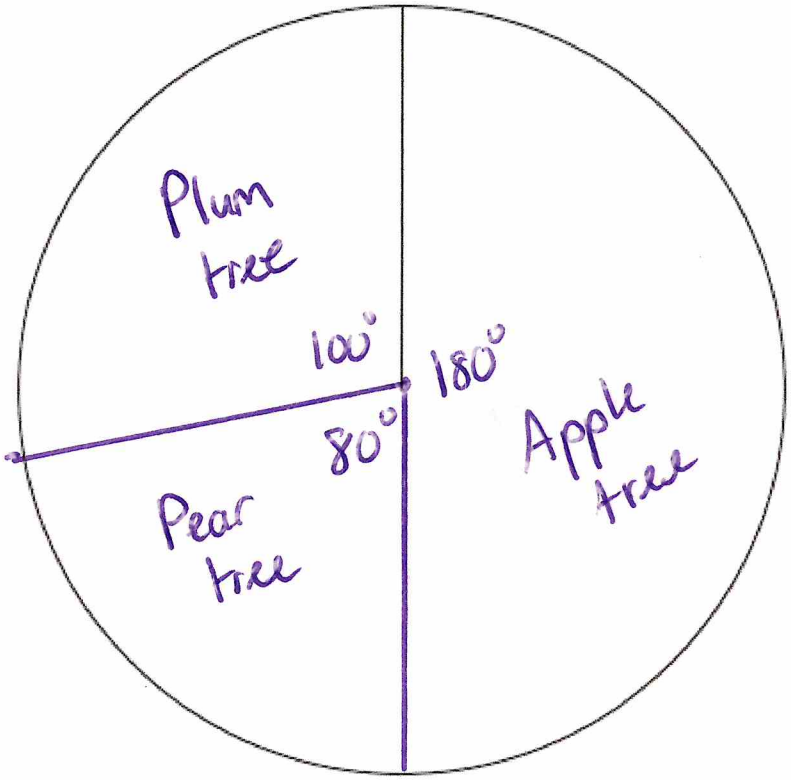
June 2017 – Paper 1F **(Total for Question 14 is 4 marks)**

14 There are 90 fruit trees in the orchard.

$\frac{360^\circ}{90} = 4^\circ$

Apple tree	Pear tree	Plum tree
45 ×4	20 ×4	25 ×4 = 90
180°	80°	100°

Draw an accurate pie chart for this information.



(3)

Sample 1 – Paper 1F

(Total for Question 14 is 3 marks)

16 There are three different types of potato in a box.

The table gives the number of each type of potato.

$\frac{360}{300} = 1.2°$

Type of potato	Number of potatoes
Jersey Royal	90
Charlotte	105
Maris Piper	105

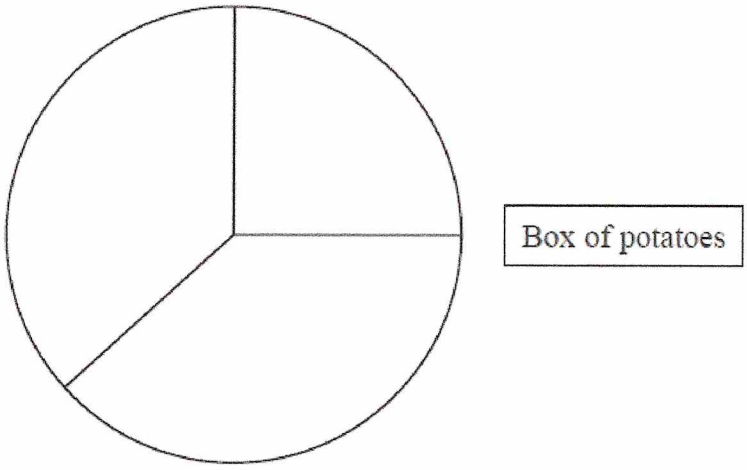
90 × 1·2 = 108°

105 × 1·2 = 126°

105 × 1·2 = 126°

300

Salim draws this pie chart for the information in the table.



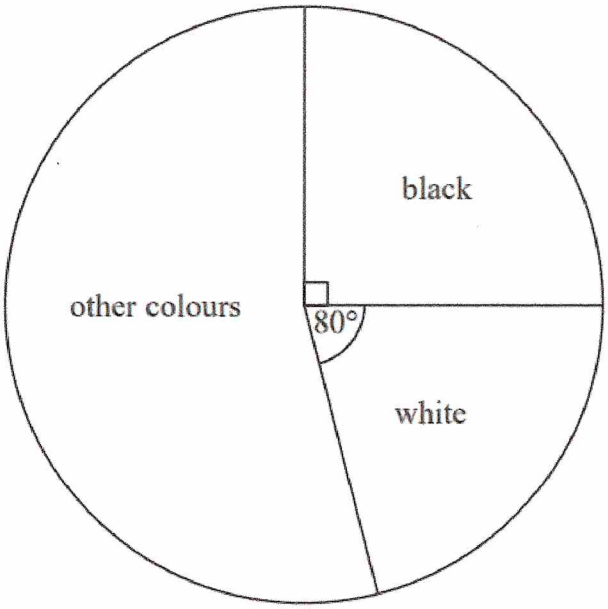
Write down two different things that are wrong or misleading with this pie chart.

1 They have drawn 90° instead of 108°

2 No labels on the diagram

(Total for Question 16 is 2 marks)

16 The pie chart gives information about the colour of each car in a car park.



There are 135 black cars in the car park.

(a) Work out the number of white cars in the car park.

÷9 ↓ 90° = 135 cars
10° = 15 cars
×8 ↓ 80° = 120 cars

120

(3)

There are 50 grey cars in the car park.

A car in the car park is picked at random.

(b) Find the probability that this car is grey.

×4 ↓ 90° = 135
360° = 540 cars in total

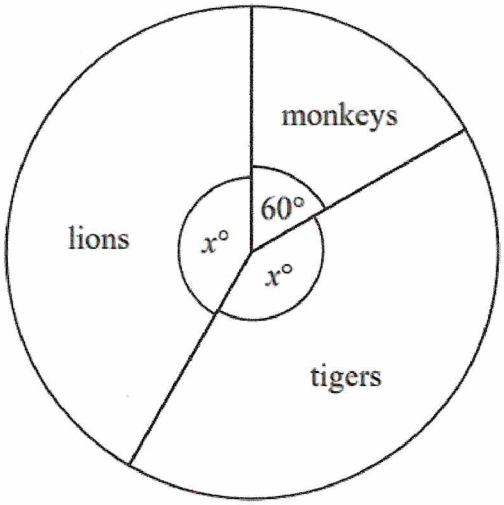
$\frac{50}{540} = \frac{5}{54}$

(2)

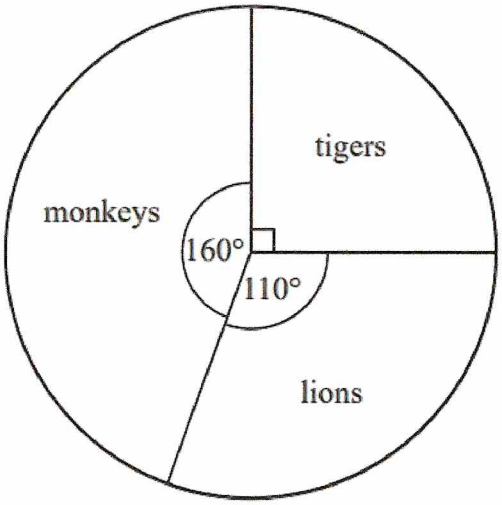
(Total for Question 16 is 5 marks)

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

School **A**



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.

$x = 150°$

School A

$\frac{150}{360} = \frac{15}{36} = \frac{5}{12}$

$\frac{5}{12}$ of $480 = 200$

School B

$\frac{90}{360} = \frac{1}{4}$

$\frac{1}{4}$ of $760 = 190$

Henry is not correct

(Total for Question 18 is 4 marks)