



- 1 In a pie chart showing how pupils travel to school, the angle for the sector 'bus' is 120° .
Write down the fraction of the pupils who travel by bus. Give your fraction in its simplest form.

(1 mark)

$$= \frac{120}{360}$$

$$= \frac{1}{3}$$

$$\boxed{\frac{1}{3}}$$

- 2 In a pie chart the angle for the sector 'cycling' is 54° .
Work out the percentage of people who cycle.

(2 marks)

$$\frac{54}{360} = 0.15$$

$$\boxed{15\%}$$

- 3 60 people were asked to name their favourite season. The results are shown in a pie chart.
The angle for Summer is 90° .

- Write down the fraction of the people who chose Summer. Give your fraction in its simplest form.
- Work out the number of people who chose Summer.

(2 marks)

The full circle represents the whole group and has angle 360° . A sector's fraction of 360° is also its fraction of the group

$$a) 90 \text{ out of } 360 \text{ degrees} = \frac{90}{360} = \frac{1}{4}$$

$$b) \frac{1}{4} \text{ of } 60 = 15 \text{ people}$$

- 4 90 people were asked how they travel to work. In a pie chart of the results, the angle for 'walking' is 72° .

Work out the number of people who walk to work.

(2 marks)

$$\frac{72}{360} = \frac{1}{5}$$

$$\frac{1}{5} \text{ of } 90 = 18$$

$$\boxed{18 \text{ people}}$$

5

A pie chart shows information about the members of a leisure centre.
The sector for swimming has an angle of 72° and represents 18 members.
Work out the total number of members of the leisure centre.

(3 marks)

72 degrees represents 18 members, so 1 degree represents 18
divided by 72 = 0.25 members

The whole pie chart is 360 degrees

$$360 \times 0.25 = 90 \text{ members}$$

Alternatively, 360 divided by 72 = 5, and $18 \times 5 = 90$

90

6

36 pupils chose their favourite sport. The table shows the angles in a pie chart of the results.

Sport	Football	Netball	Swimming	Tennis
Angle	160°	90°	?	50°

- Work out the angle for swimming.
- Work out the number of pupils who chose football.

(3 marks)

a)

$$360 - 160 - 90 - 50 = 60$$

60°

b)

$$360^\circ \div 36 \text{ pupils} = 10^\circ \text{ each}$$

$$160 \div 10 = 16$$

16 pupils

7

120 people were asked to name their favourite holiday destination. The table shows the angles in a pie chart of the results.

Destination	Angle
Italy	150°
Spain	90°
France	72°
Greece	48°

- Write down the modal destination.
- Work out the number of people who chose France.

(3 marks)

a) Italy has the largest angle, 150 degrees, so it is the mode

b) France

$$\frac{72}{360} \text{ of the people} = \frac{72}{360} \times 120 = 24 \text{ people}$$

8

A family spends £1800 each month. A pie chart shows how the money is spent. The angle for rent is 120° and the angle for savings is 30°.

- Work out how much is spent on rent.
- Write down the fraction of the money that is saved. Give your fraction in its simplest form.

(3 marks)

a)

$$\frac{120}{360} = \frac{1}{3}$$

$$\frac{1}{3} \text{ of } 1800 = 600$$

£600

b)

$$\frac{30}{360} = \frac{1}{12}$$

$\frac{1}{12}$

9

Two schools each drew a pie chart to show their students' favourite lunch.

School	Number of students	Angle for pizza
School A	80	45°
School B	240	30°

Sam says, "More students chose pizza at School A than at School B, because the angle for pizza is bigger at School A."

Is Sam right? You must show your working.

(4 marks)

School A

$$\frac{45}{360} \times 80 = 10 \text{ students chose pizza}$$

School B

$$\frac{30}{360} \times 240 = 20 \text{ students chose pizza}$$

20 > 10, so Sam is wrong. The pie charts represent different numbers of students, so a bigger angle does not mean a bigger number

10

72 students were asked how they travel to school. In a pie chart, the angle for car is 100° and the angle for bus is 80°. The sectors for walking and cycling have the same angle.

Work out the number of students who walk.

(4 marks)

$$360 - 100 - 80 = 180$$

$$180 \div 2 = 90$$

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

$$\frac{1}{4} \text{ of } 72 = 18$$

18 students

11

200 people entered a raffle. A pie chart shows the colours of the tickets they bought.

The angle for red tickets is 126°.

- Work out the number of people who bought a red ticket.
- One of the 200 people is chosen at random. Write down the probability that this person bought a red ticket. Give your answer as a fraction in its simplest form.

Each person bought exactly one ticket.

(4 marks)

a) Red tickets

$$\frac{126}{360} \times 200 = 70 \text{ people}$$

b) Probability

$$\frac{70}{200} = \frac{7}{20}. \text{ This is the same as } \frac{126}{360} \text{ simplified}$$

12

150 students chose a language to study. In a pie chart, the angle for French is 144° and the angle for Spanish is 108° . The rest chose German.

- Work out the angle for German.
- How many more students chose French than German?

(4 marks)

a)

$$360 - 144 - 108 = 108$$

$$\boxed{108^\circ}$$

b)

$$\text{French: } \frac{144}{360} \text{ of } 150 = 60$$

$$\text{German: } \frac{108}{360} \text{ of } 150 = 45$$

$$60 - 45 = 15$$

$$\boxed{15 \text{ more}}$$

13

300 people voted for the name of a new park. A pie chart shows the results.

The angle for Alder Park is 96° and the angle for Birch Park is 144° . The only other choice was Cedar Park.

- Work out the angle for Cedar Park.
- Work out the number of people who voted for Cedar Park.
- Work out how many more people voted for Birch Park than for Alder Park.

(5 marks)

a) Cedar Park

$$360 - 96 - 144 = 120 \text{ degrees}$$

b) Cedar Park votes

$$\frac{120}{360} \times 300 = 100 \text{ people}$$

c) Birch Park

$$\frac{144}{360} \times 300 = 120 \text{ votes. Alder Park: } \frac{96}{360} \times 300 = 80 \text{ votes}$$

Difference

$$120 - 80 = 40 \text{ people}$$