White Rose Maths
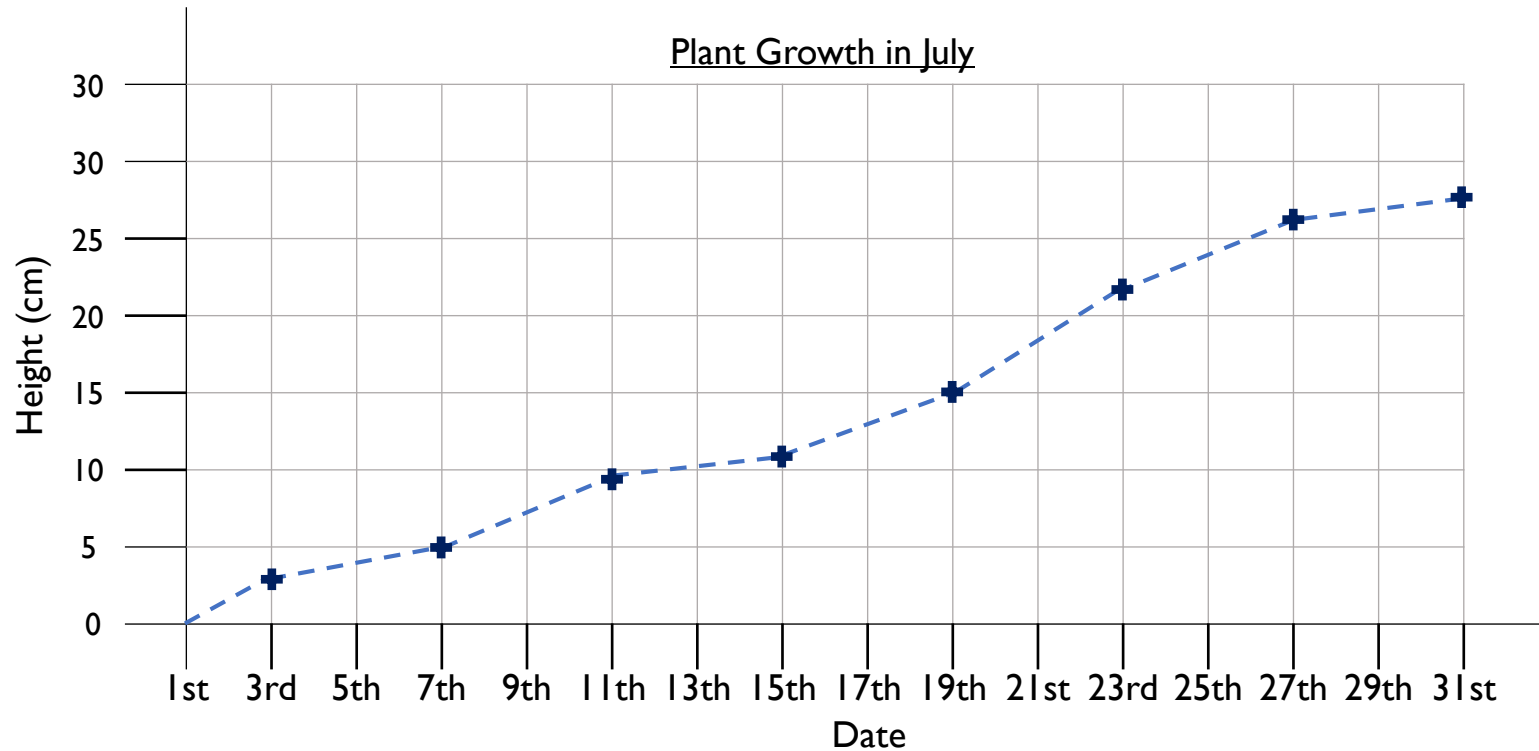
Year 6 - Summer - Block 3

Statistics

Eva has created a graph to track the growth of a plant in her house.

Plant Growth in July

(graph with x-axis labelled "Date" showing 1st, 3rd, 5th, 7th, 9th, 11th, 13th, 15th, 17th, 19th, 21st, 23rd, 25th, 27th, 29th, 31st; y-axis labelled "Height (cm)" showing 0, 5, 10, 15, 20, 25, 30, 30)
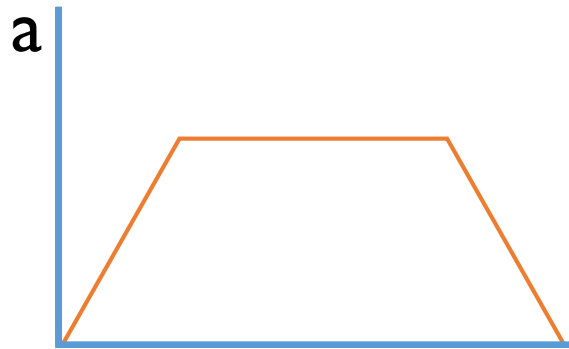
Eva recorded the following facts about the graph.

a) On the 9th of July the plant was about 9 cm tall.

b) Between the 11th and 19th July the plant grew about 5 cm.

c) At the end of the month the plant was twice as tall as it had been on the 13th.

Can you spot and correct Eva's mistakes?

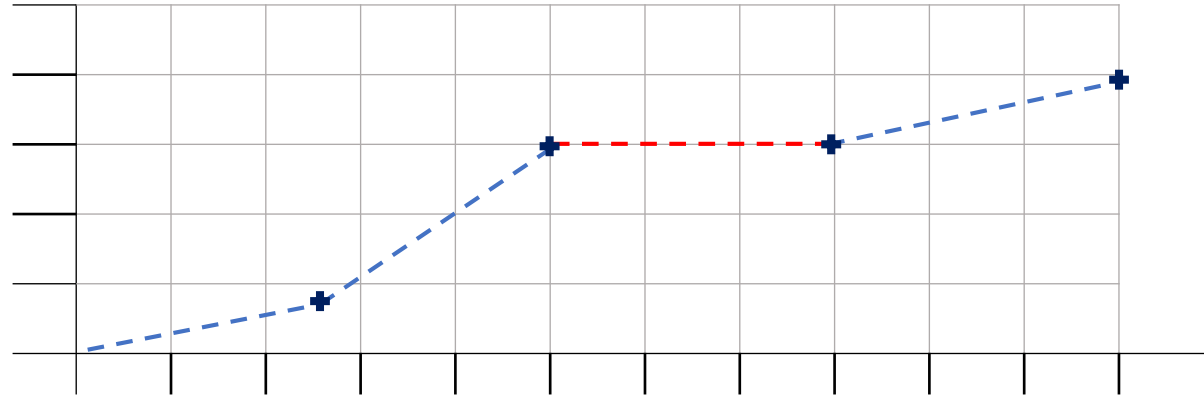Write a story and 3 questions for each of the 3 graphs below.
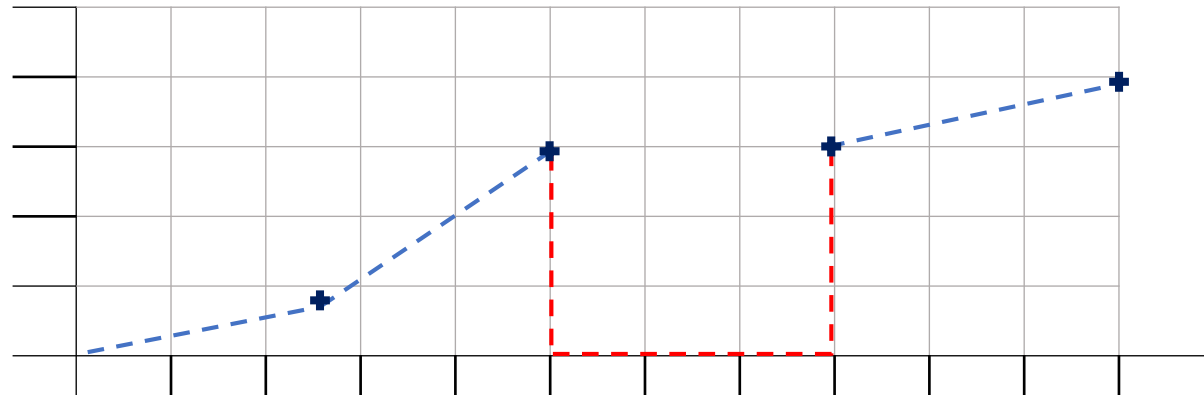
This graph shows the distance a car travelled.
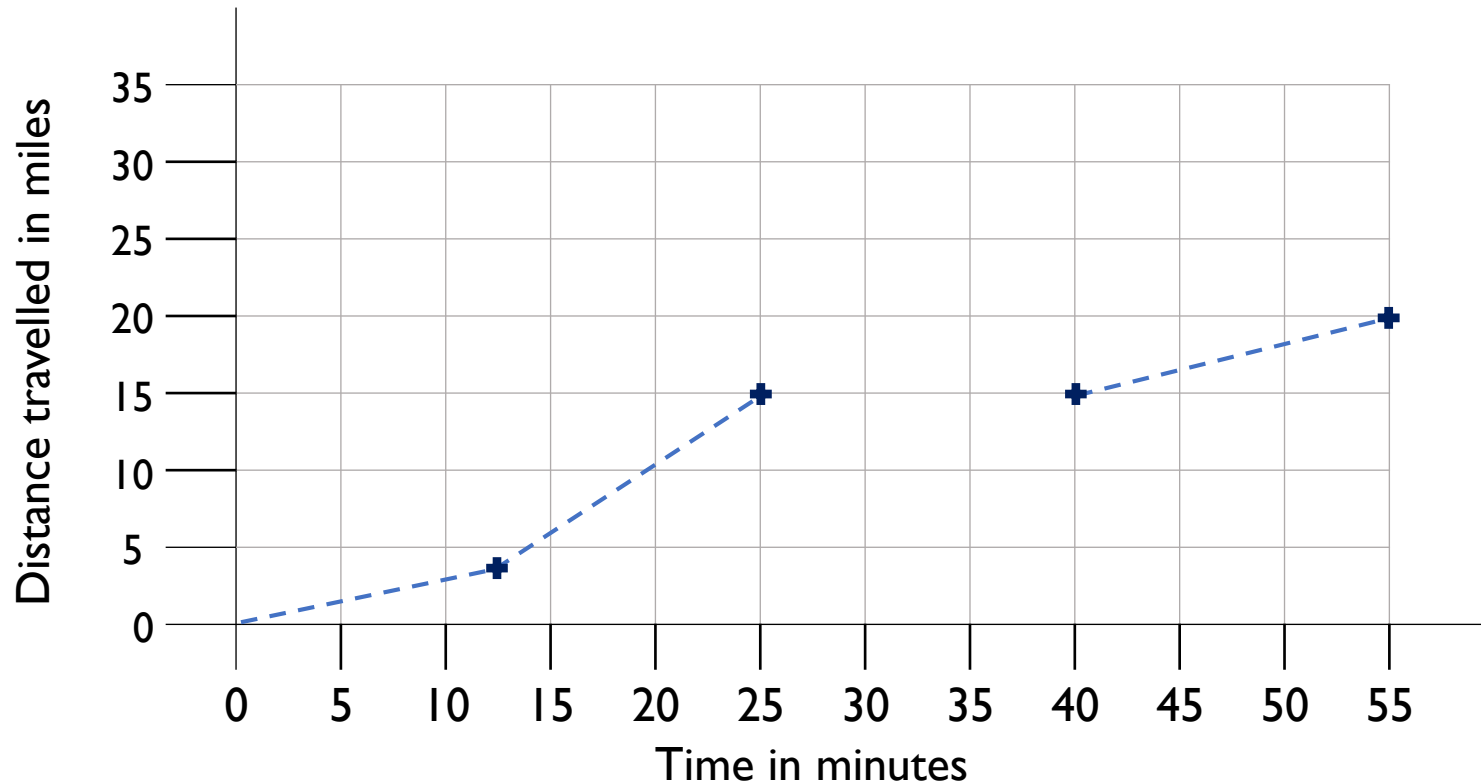
Rosie and Jack were asked to complete the graph to show the car had stopped.

Here are their completed graphs.

Rosie:

Jack:

Who has completed the graph correctly?
Explain how you know.

This table shows the distance a lorry travelled during the day.

Create a line graph to represent the information, where the divisions along the x-axis are every two hours.
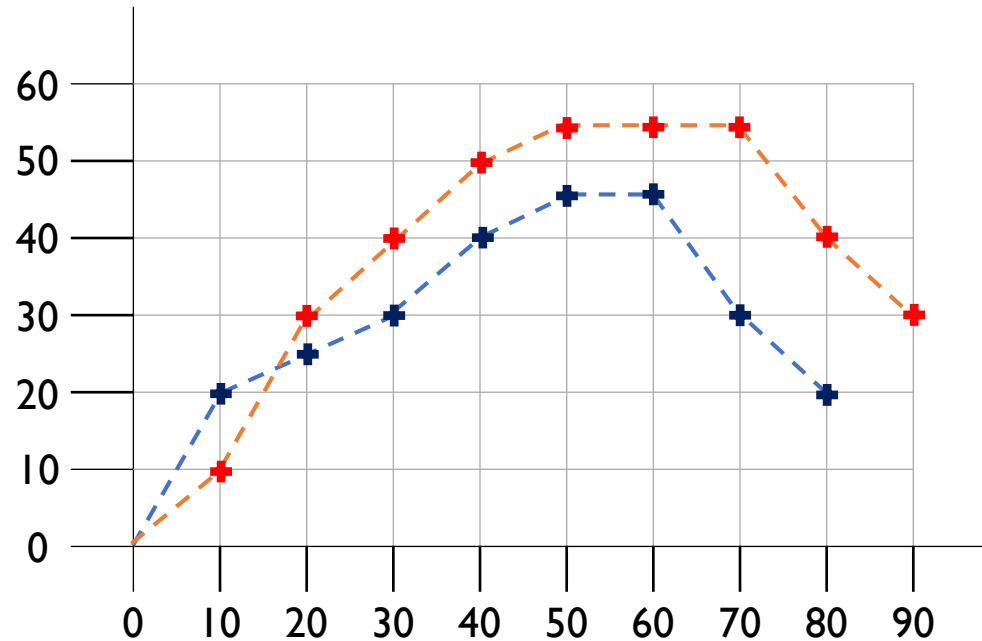
Create a second line graph where the divisions along the x-axis are every hour.

Compare your graphs. Which graph is more accurate?

Would a graph with divisions at each half hour be even more accurate?

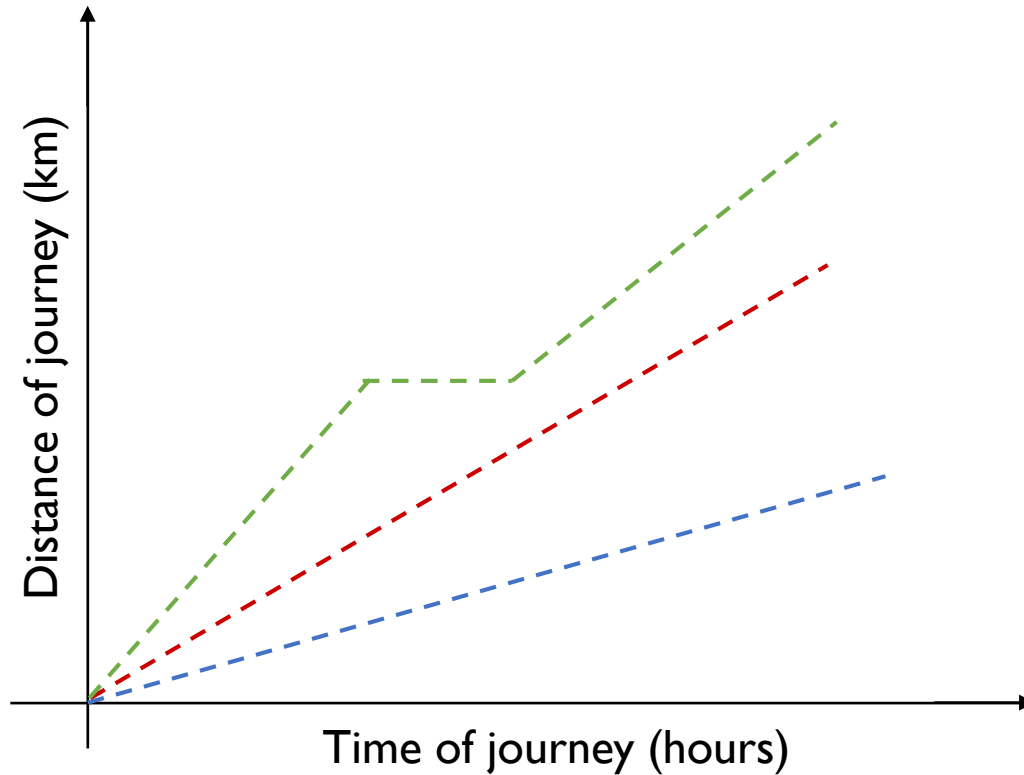| Time	Distance in miles
7.00 a.m.	10
8.00 a.m.	28
9.00 a.m.	42
10.00 a.m.	58
11.00 a.m.	70
12.00 a.m.	95
1.00 p.m.	95
2.00 p.m.	118

What could this graph be showing?

Label the horizontal and vertical axes to show this.

Is there more than one way to label the axes?

The graph below shows some of Mr Woolley's journeys.

What is the same and what is different about each of these journeys?

What might have happened during the green journey?

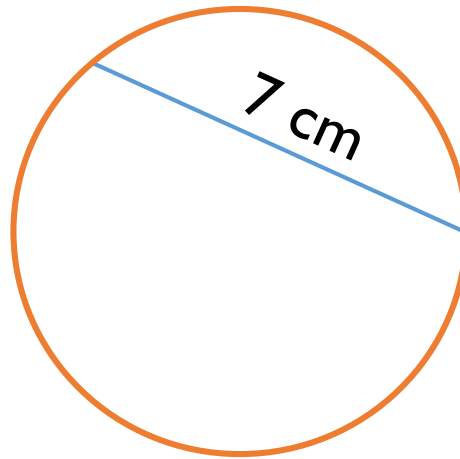© White Rose Maths 2019

Alex says:

The bigger the radius of a circle, the bigger the diameter.

Do you agree? Explain your reasoning.
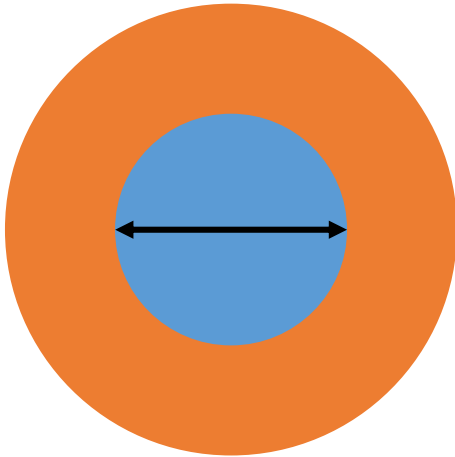
Spot the mistake!

Tommy has measured and labelled the diameter of the circle below.

He thinks that the radius of this circle will be 3.5 cm.

7 cm

Is Tommy right? Explain why.

Here are 2 circles. Circle A is blue; Circle B is orange.
The diameter of Circle A is $\frac{3}{4}$ the diameter of Circle B.

If the diameter of Circle B is 12 cm, what is the diameter of Circle A?

If the diameter of Circle A is 12 cm, what is the radius of Circle B?

If the diameter of Circle B is 6 cm, what is the diameter of Circle A?

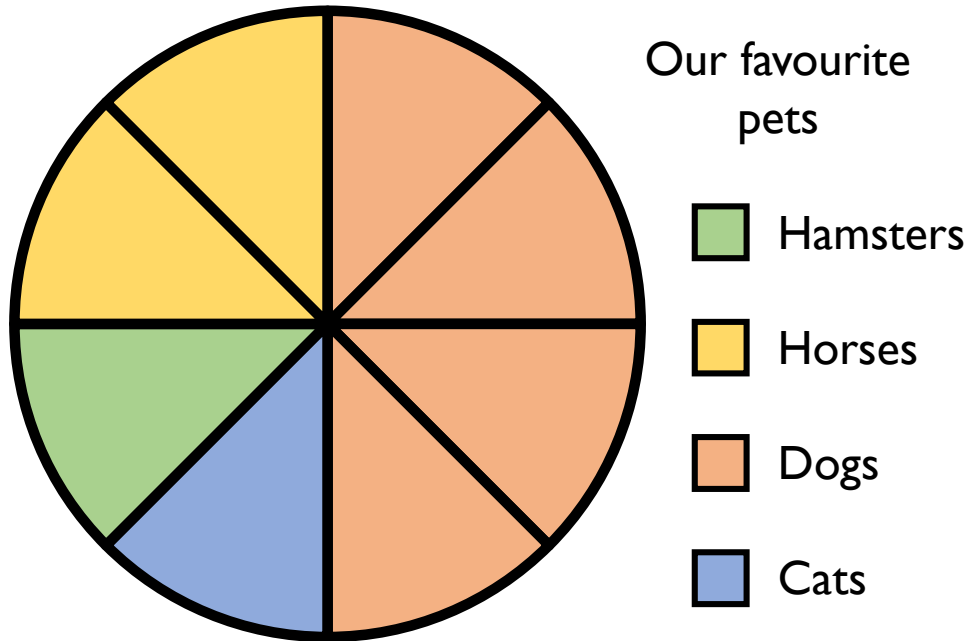If the diameter of Circle A is 6 cm, what is the radius of Circle B?

In a survey people were asked what their favourite season of the year was. The results are shown in the pie chart below.

If 48 people voted summer, how many people took part in the survey?

Our favourite time of year

■ Spring

■ Summer

■ Autumn

■ Winter
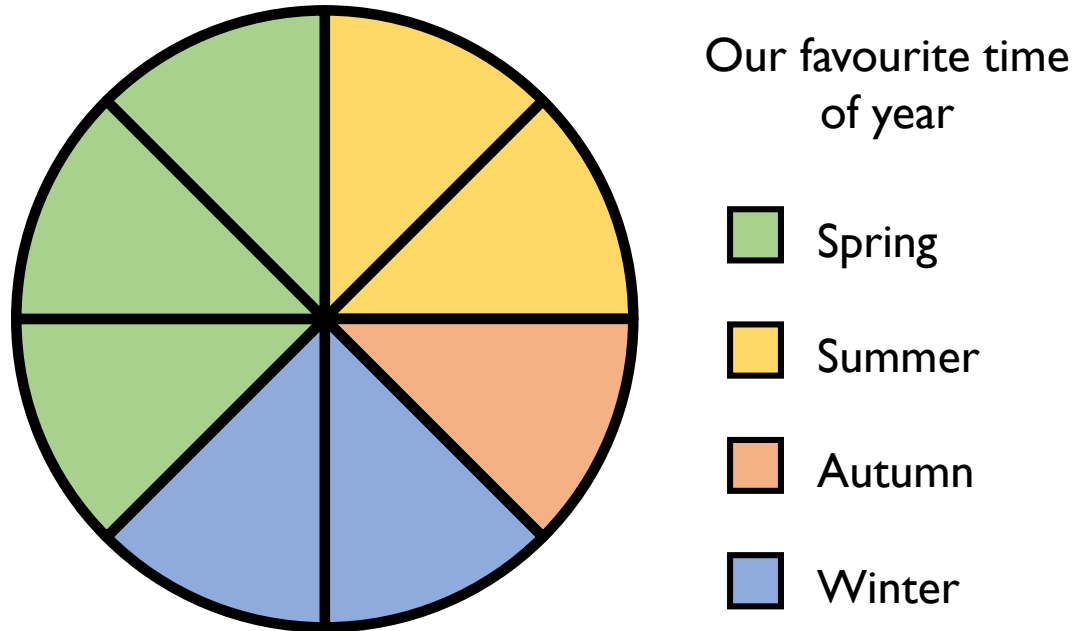
Explain your method.

96 people took part in this survey.

Our favourite pets

- ⬛ Hamsters
- ⬛ Horses
- ⬛ Dogs
- ⬛ Cats

How many people voted for cats?

$\frac{3}{8}$ of the people who voted for dogs were male. How many females voted for dogs?

What other information can you gather from the pie chart?

Write some questions about the pie chart for your partner to solve.
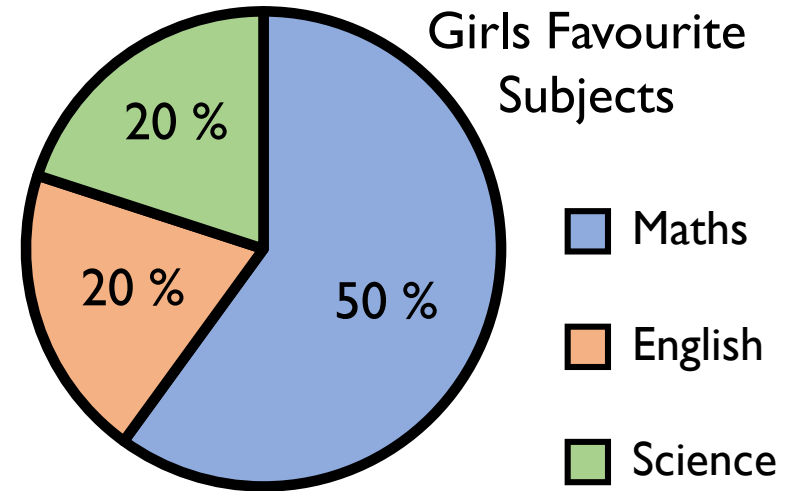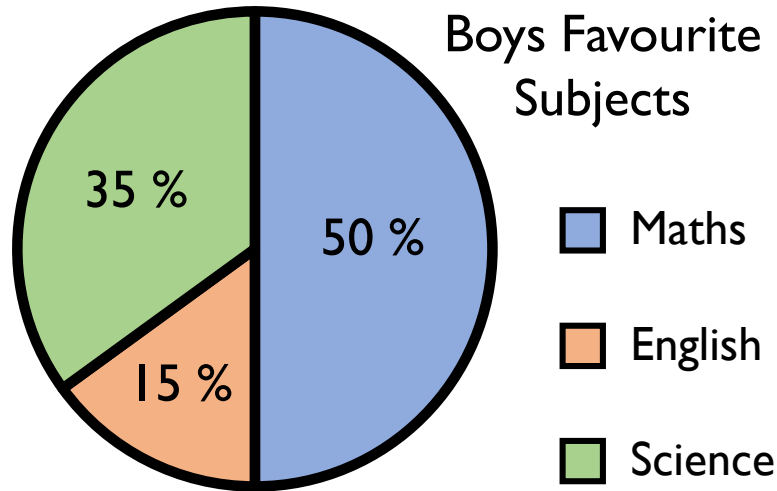
15 people in this survey have no siblings. Use this information to work out how many people took part in the survey altogether.

Number of siblings

- ▨ No siblings
- ▨ 1 siblings
- ▨ 2 siblings
- ▨ 3 siblings
- ▨ 4 siblings
- ▨ 5 siblings
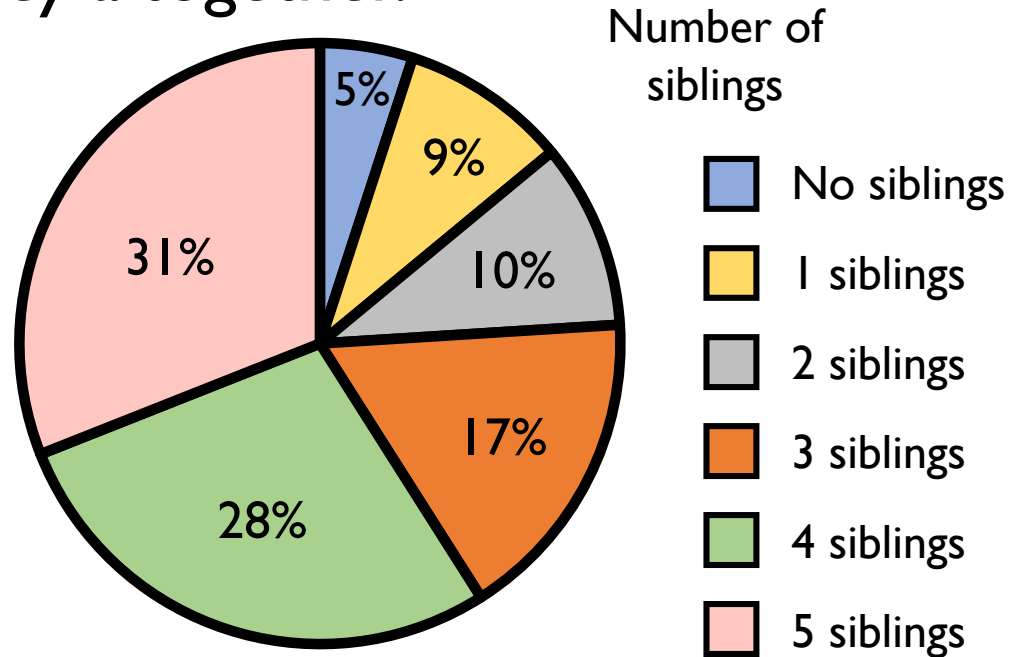
Now work out how many people each segment of the pie chart is worth.

Can you represent the information in a table?

120 boys and 100 girls were asked which was their favourite subject. Here are the results:

Boys Favourite Subjects

35 %

50 %

15 %

☐ Maths

☐ English

☐ Science

Girls Favourite Subjects

20 %

20 %

50 %

☐ Maths

☐ English

☐ Science

Jack says:

More girls prefer Maths than boys because 60 % is bigger than 50 %.

Do you agree? Explain why.

A survey was conducted to work out Year 6's favourite sport. Work out the missing information and then construct a pie chart.

Favourite sport	Number of children	Convert to degrees
Football	10	
Tennis	18	
Rugby		___ × 6 = 90°
Swimming	6	6 × 6 = 36°
Cricket		___ × 6 = 42°
Golf	4	4 × 6 = 24°
Total	**60**	**360°**

A restaurant was working out which Sunday dinner was the most popular. Use the data to construct a pie chart.

Dinner choice	Frequency	Convert to degrees
Chicken	11	
Pork	8	
Lamb	6	
Beef	9	
Vegetarian	6	
Total	**40**	

Miss Jones is carrying out a survey in class about favourite crisp flavours. 15 pupils chose salt and vinegar.
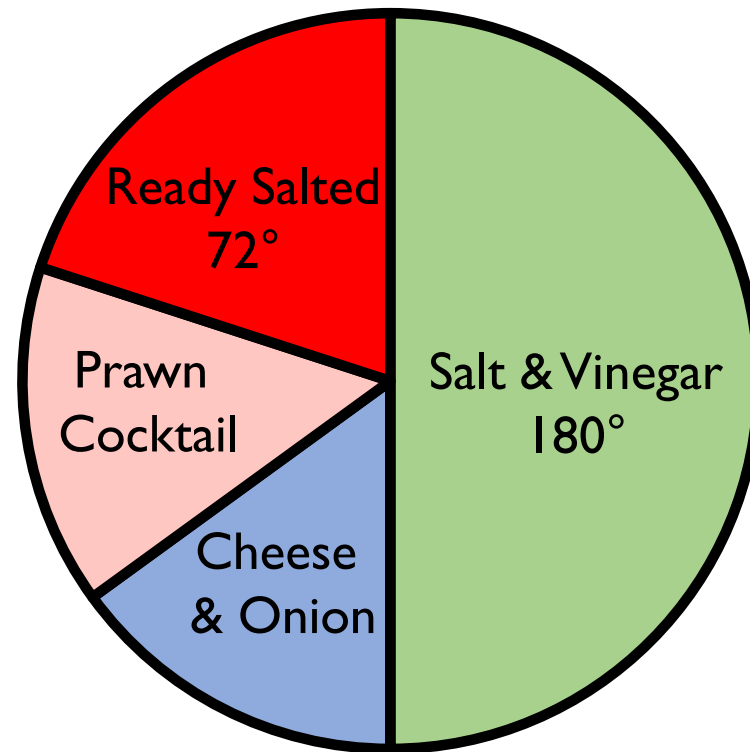
How many fewer people chose ready salted?

The mean number of goals scored in 6 football matches was 4

Use this information to calculate how many goals were scored in the 6th match:

Match number	Number of goals
1	8
2	4
3	6
4	2
5	1
6	

Three football teams each play 10 matches over a season.

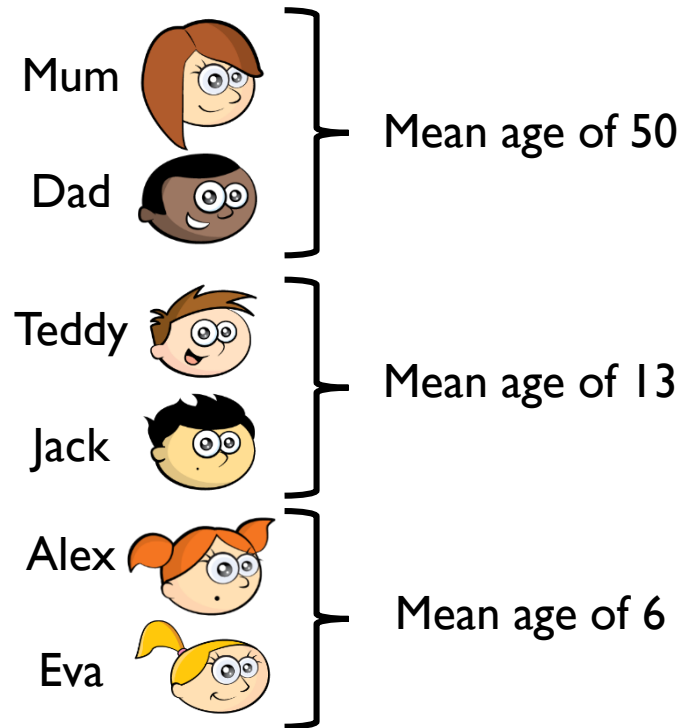The mean number of goals scored by each team was 2

How many goals might the teams have scored in each match?

How many solutions can you find?

Work out the age of each member of the family if:

Mum is 48 years old.

Teddy is 4 years older than Jack and 7 years older than Alex.

Mum

Dad

Mean age of 50

Teddy

Jack

Mean age of 13

Alex

Eva

Mean age of 6

Calculate the mean age of the whole family.