Reasoning and Problem Solving
Step 7: Draw Pie Charts

National Curriculum Objectives:

Mathematics Year 6: (6S1) Interpret and construct pie charts and line graphs and use these to solve problems

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Use the information to calculate the number of people represented on a section of a pie chart. Data totals 36 or 360.
Expected Use the information to calculate the number of people represented on a section of a pie chart. Data total is divisible by 6.
Greater Depth Use the information to calculate the number of people represented on a section of a pie chart. Data totals divisible by any factor of 360.

Questions 2, 5 and 8 (Problem Solving)
Developing Calculate the remaining number using the given clues and convert the answer in to degrees. Data totals 36 or 360.
Expected Calculate the remaining number using the given clues. Data total is divisible by 6.
Greater Depth Calculate the remaining number using the given clues. Data total is divisible by any factor of 360.

Questions 3, 6 and 9 (Reasoning)
Developing Explain whether a given statement is correct. Data totals 36 or 360.
**Expected** Explain whether a given statement is correct. Data total is divisible by 6.
Greater Depth Explain whether a given statement is correct. Data total is divisible by any factor of 360 or a percentage which is a multiple of 5.

More Year 6 Statistics resources.

Did you like this resource? Don't forget to review it on our website.

Draw Pie Charts

Draw Pie Charts
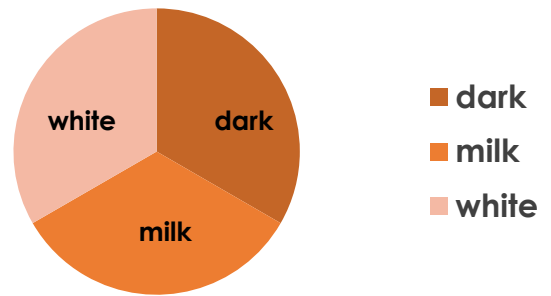
1a. This pie chart represents 36 coloured beads.
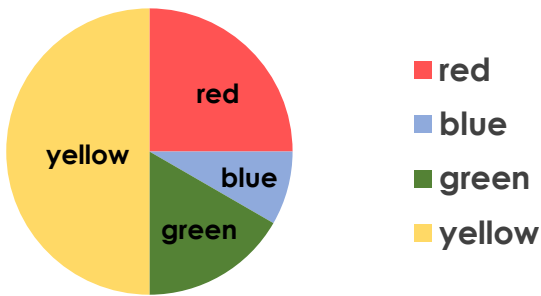
How many yellow beads are there? Explain how you know.

⭐D

R

1b. This pie chart represents 360 people's favourite type of chocolate.

If all three are equal, how many people liked each type of chocolate? Explain how you know.

⭐D

R

2a. Philip is creating a pie chart about a group of children's favourite games.

In a group of 360, 120 chose hide and seek, 80 chose scarecrow tag and the rest chose rounders. How many children chose rounders and how many degrees would they represent on a pie chart?

⭐D

PS

2b. Gabriella is a creating a pie chart about the show size of some of her friends.

In a group of 36, half had size 6 shoes. 9 had size 7 shoes and the rest had other sizes. How many had other shoe sizes and how many degrees would they represent on a pie chart?

⭐D

PS

3a. Sylvia has created a table of information which she wants to convert into a pie chart.

> My table totals 36 so it will be easy to represent with a pie chart.

Do you agree with Sylvia's idea? Explain your answer.

⭐D

R

3b. Ezra has created a table of 360 children's favourite colours which he wants to convert into a pie chart.

> My table shows that 120 of my friends chose blue, 75 chose red and 65 chose orange. My data is ready to be made into a pie chart.
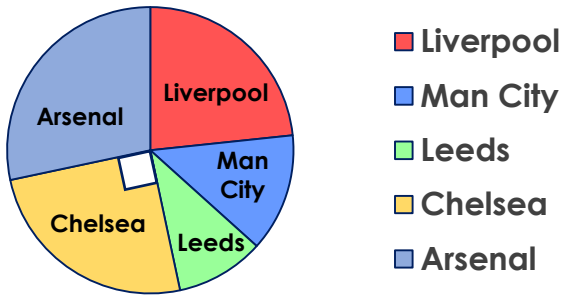
Do you agree with Ezra? Explain your answer.

⭐D

R

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Draw Pie Charts

Draw Pie Charts

4a. This pie chart represents 60 football fans in a crowd.

- ■ Liverpool
- ■ Man City
- ■ Leeds
- ■ Chelsea
- ■ Arsenal
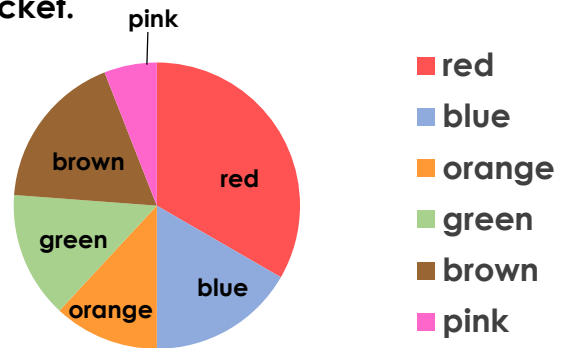
What are the number of Liverpool, Man City, Leeds and Arsenal fans altogether? Explain how you know.

E

R

4b. This pie chart represents 84 smarties in a packet.

- ■ red
- ■ blue
- ■ orange
- ■ green
- ■ brown
- ■ pink

If one third of the smarties are red, how many smarties are blue? Explain how you know.

E

R

5a. A teacher is creating a pie chart about Year 6's favourite colours.

In a class of 60, 28 children chose blue, one quarter of the class chose red, 3 children chose orange and the rest chose other colours. How many children chose 'other' colours and how many degrees would they represent on the pie chart?

E

PS

5b. Saffa is creating a pie chart about the favourite crisps of her classmates.

In a group of 72, one third chose ready salted, 23 chose salt and vinegar, 15 chose prawn cocktail and the rest chose cheese and onion. How many chose cheese and onion and how many degrees would they represent on a pie chart?

E

PS

6a. Heidi has created a table of information which she wants to convert into a pie chart.

> There are 24 people in my survey. I need to multiply my numbers by 15 to calculate the correct degrees for my pie chart.

Do you agree with Heidi's method? Explain your answer.

E

R

6b. Dillon has created a table of information which he wants to convert into a pie chart.

> 30 people took part in my survey. 360 divided by 30 is 12, I need to multiply my numbers by 12 to calculate the correct degrees for my pie chart.
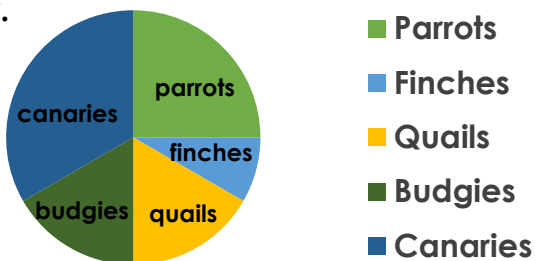
Do you agree with Dillon's method? Explain your answer.

E

R

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Reasoning and Problem Solving – Draw Pie Charts – Year 6 Expected

Draw Pie Charts

Draw Pie Charts

7a. This pie chart represents 60 birds in an aviary.

- 🟩 Parrots
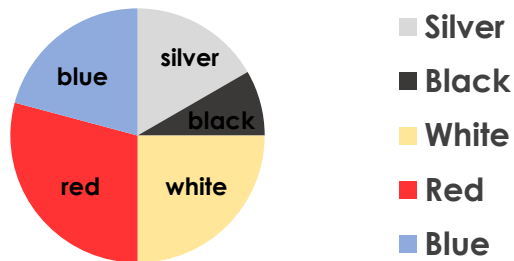- 🟦 Finches
- 🟨 Quails
- 🟩 Budgies
- 🟦 Canaries

There are 5 finches. The number of canaries is the same as the total number of parrots and finches. If there are equal amounts of quails and budgies how many birds are quails? Explain how you know.

⭐GD

R

7b. This pie chart represents different coloured cars.

- ⬜ Silver
- ⬛ Black
- 🟨 White
- 🟥 Red
- 🟦 Blue

There are 60 white and 40 silver. How many were there in the survey altogether?
Explain how you know.

⭐GD

R

8a. Eddie is creating a pie chart about Year 6's favourite muffins.

In a group of 72, one third chose chocolate, one quarter chose lemon and 2 children chose banana. Half of the remaining children chose cherry and 3 children chose caramel. The rest chose blueberry. How many chose blueberry and how many degrees would they represent on the pie chart?

⭐GD

PS

8b. Justine is creating a pie chart about the favourite dog breeds of her family.

In a group of 60, two tenths chose border collies and one third of the remaining group chose pugs. 8 people chose dalmatians and twice as many chose golden retrievers. The rest chose other breeds. How many chose 'others' and how many degrees would they represent on the pie chart?

⭐GD

PS

9a. Amra has created a table of information which she wants to convert into a pie chart.

> 35% of the people in my survey said that they liked cheese the best so I just divide 360 by 35 to find out how many degrees this will be.

Do you agree with Amra's method? Explain your answer.

⭐GD

R

9b. Benji has created a table of information which he wants to convert into a pie chart.

> I know that 360° of a pie chart must equal 100% of my data. This means that if the sum of my numbers is 100, each person will represent 1°

Do you agree with Benji's reasoning? Explain your answer.

⭐GD

R

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Reasoning and Problem Solving
Draw Pie Charts

Developing

1a. 18 because half of the pie chart represents yellow and half of 36 = 18.

2a. 160 children chose rounders. They would represent 160°

3a. Yes because 360 ÷ 36 = 10 so each set of data will need multiplying by 10.

Expected

4a. 45 because Chelsea is one quarter which is 15 so the rest must total 45.

5a. 14 because 28 + 15 (one quarter) + 3 = 46. 60 – 46 = 14. They would represent 84°

6a. No because she needs to divide 360 by the total number in her survey and then multiply by that number to calculate the correct degrees.

Greater Depth

7a. 10 Quails. Parrots = 15. 15 + 5 = 20. Canaries = 20 so Quails and Budgies = 20 together therefore Quails must = 10.

8a. 11. 24 (one third) + 18 (one quarter) + 2 = 44. This leaves 28 remaining. 14 (half) + 3 = 17. 28 – 17 = 11. They would represent 55°

9a. No it would be 126. She needed to divide 360 by 100 and the multiply that by 35. 360 ÷ 100 = 3.6. 3.6 x 35 = 126.

Developing

1b. 120 because 360 ÷ 3 = 120.

2b. 9 children had other shoe sizes. They would represent 90°

3b. No because the data does not add up to 360 so it is incomplete.

Expected

4b. 14 because one third of 84 is 28 and red and blue need to total half which is 42. 42 – 28 = 14

5b. 10 because 24 (one third) + 23 + 15 = 62. 72 – 62 = 10. They would represent 50°

6b. Yes because 360 ÷ 30 = 12.

Greater Depth

7b. 240. 60 white = one quarter. 4 x 60 = 240.

8b. 8. 60 – 12 (two tenths) = 48. 48 – 16 (one third) – 8 – 16 (twice 8) = 8. They would represent 48°

9b. No it would be 3.6°. He needs to divide 360 by 100. 360 ÷ 100 = 3.6