

Lesson 12-4: Using Percents

A percent can always be used to compare a part to a whole. In a percent, the whole is always 100.

$$\frac{\%}{100} = \frac{\textit{part}}{\textit{whole}}$$

Finding a Part

What is 85% of 20?

1. What is 30% of 50?

2. What is 80% of 25?

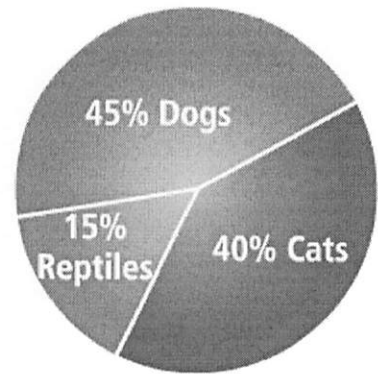
Finding a Whole

17 is 85% of what number?

3. 40 is 200% of what number?

4. 13 is 15% of what number?

Types of Pets



Example

Customers in a pet store were asked what type of pet they own. The circle graph shows the results of the survey. If 8 customers own cats, how many customers were surveyed?

Got It?

In one community, 84% of the animal shelters microchip cats and dogs before adoption. If 21 shelters in the community microchip cats and dogs, how many animal shelters are in that community?

Got It?

During one year, 60% of the hurricanes that struck the U.S. were Category 1 hurricanes. If nine Category 1 hurricanes struck the U.S. that year, what was the total number of hurricanes that struck the U.S. during that year?

Lesson 12-4: Using Percents

A percent can always be used to compare a part to a whole. In a percent, the whole is always 100.

$$\frac{\%}{100} = \frac{\text{part}}{\text{whole}}$$

$$\frac{\%}{100} = \frac{\text{is}}{\text{of}}$$

Finding a Part

What is 85% of 20?

$$\frac{85}{100} = \frac{17}{20}$$

(Handwritten: 85 and 100 are divided by 5 to get 17 and 20 respectively. The 17 is circled.)

1. What is 30% of 50?

$$\frac{30}{100} = \frac{15}{50}$$

(Handwritten: 30 and 100 are divided by 2 to get 15 and 50 respectively. The 15 is circled.)

2. What is 80% of 25?

$$\frac{80}{100} = \frac{20}{25}$$

(Handwritten: 80 and 100 are divided by 4 to get 20 and 25 respectively. The 20 is circled.)

Finding a Whole

17 is 85% of what number?

$$\frac{85}{100} = \frac{17}{x}$$

(Handwritten: The 85 and 100 are crossed out, and the 17 and x are connected by a line.)

$$\begin{array}{l} 85x = 1700 \\ \div 85 \quad \div 85 \\ \hline x = 20 \end{array}$$

(Handwritten: The final result x = 20 is circled.)

3. 40 is 200% of what number?

$$\frac{200}{100} = \frac{40}{20}$$

(Handwritten: 200 and 100 are divided by 5 to get 40 and 20 respectively. The 20 is circled.)

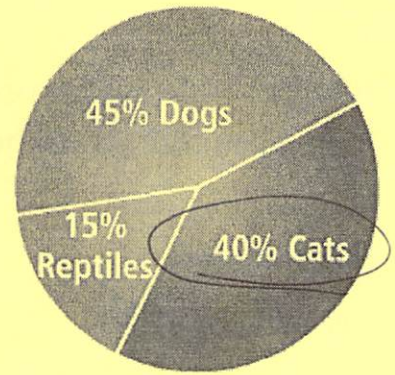
4. 13 is 15% of what number?

$$\frac{15}{100} = \frac{13}{x}$$

(Handwritten: The 15 and 100 are crossed out, and the 13 and x are connected by a line.)

$$\begin{array}{l} 15x = 1300 \\ \hline x = 86.\bar{6}\% \end{array}$$

Types of Pets



Example

Customers in a pet store were asked what type of pet they own. The circle graph shows the results of the survey. If 8 customers own cats, how many customers were surveyed?

~~100~~

$$\frac{\text{cat owners}}{\text{total people}} \rightarrow \frac{40}{100} = \frac{8}{20}$$

Handwritten annotations show a blue arrow from 8 to 40 with $\div 5$ above it, and another blue arrow from 20 to 100 with $\div 5$ below it.

20 customers were surveyed

Got It?

In one community, 84% of the animal shelters microchip cats and dogs before adoption. If 21 shelters in the community microchip cats and dogs, how many animal shelters are in that community?

$$\frac{\text{Shelters that microchip}}{\text{total shelters}} = \frac{84}{100} = \frac{21}{x}$$

Handwritten annotations show a blue arrow from 21 to 84 with $\div 4$ above it, and another blue arrow from x to 100 with $\div 4$ below it.

25 shelters in the community

Got It?

During one year, 60% of the hurricanes that struck the U.S. were Category 1 hurricanes. If nine Category 1 hurricanes struck the U.S. that year, what was the total number of hurricanes that struck the U.S. during that year?

$$\frac{\text{Cat 1 Hurricanes}}{\text{Total Hurricanes}}$$

$$\frac{60}{100} = \frac{9}{x}$$

Handwritten annotations show the 60 and 100 crossed out with a blue line, and the 9 and x crossed out with a blue line.

$$\frac{60}{60} \times \frac{900}{60} = \frac{900}{60}$$

x = 15

15 total hurricanes