

The Percent Proportion

ANSWER
KEY

To solve a percent problem using a proportion, set up a ratio showing part to the whole and a ratio showing the percent.

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

Three types of problems:

1. When you are looking for the PERCENT:

What percent of 8 is 2?

$$\frac{2}{8} = \frac{x}{100}$$

$$\begin{aligned} 8x &= 2(100) \\ \cancel{8}x &= \frac{200}{\cancel{8}} \\ x &= 25 \end{aligned}$$

2. When you are looking for the PART:

What number is 20% of 64?

$$\frac{20}{100} = \frac{x}{64}$$

$$\begin{aligned} 100x &= 20(64) \\ \frac{100x}{100} &= \frac{1280}{100} \\ x &= 12.8 \end{aligned}$$

3. When you are looking for the WHOLE:

5 is 30% of what number?

$$\frac{30}{100} = \frac{5}{x}$$

$$\begin{aligned} 30x &= 5(100) \\ \frac{30x}{30} &= \frac{500}{30} \\ x &= 16.\bar{6} \end{aligned}$$

$$\frac{\text{part "is" "of"}}{\text{whole}} = \frac{\%}{100}$$

HOMEWORK 5.3

<p>1. What percent of 40 is 15?</p> $\frac{15}{40} = \frac{x}{100}$ $40x = 15(100)$ $\frac{40x}{40} = \frac{1500}{40}$ $x = 37.5$	<p>2. Find 5% of 80.</p> $\frac{x}{80} = \frac{5}{100}$ $100x = 5(80)$ $\frac{100x}{100} = \frac{400}{100}$ $x = 4$	<p>3. 45 is 60% of what number?</p> $\frac{45}{x} = \frac{60}{100}$ $60x = 45(100)$ $\frac{60x}{60} = \frac{4500}{60}$ $x = 75$
<p>4. 46 is what percent of 69?</p> $\frac{46}{69} = \frac{x}{100}$ $69x = 46(100)$ $\frac{69x}{69} = \frac{4600}{69}$ $x = 66.\bar{6}$	<p>5. Find 55% of 120.</p> $\frac{x}{120} = \frac{55}{100}$ $100x = 55(120)$ $\frac{100x}{100} = \frac{6,600}{100}$ $x = 66$	<p>6. 11 is 44% of what number?</p> $\frac{11}{x} = \frac{44}{100}$ $44x = 11(100)$ $\frac{44x}{44} = \frac{1100}{44}$ $x = 25$
<p>7. 19 is what percent of 20?</p> $\frac{19}{20} = \frac{x}{100}$ $20x = 19(100)$ $\frac{20x}{20} = \frac{1900}{20}$ $x = 95$	<p>8. What number is 85% of 40?</p> $\frac{x}{40} = \frac{85}{100}$ $100x = 40(85)$ $\frac{100x}{100} = \frac{3,400}{100}$ $x = 34$	<p>9. 9 is 18% of what number?</p> $\frac{9}{x} = \frac{18}{100}$ $18x = 9(100)$ $\frac{18x}{18} = \frac{900}{18}$ $x = 50$

10. In a recent season, the San Francisco Giants won 75 out of 162 games. What percent of their games did they win? Round to the nearest tenth if necessary.

$$\frac{75}{162} = \frac{x}{100}$$

$$162x = 75(100)$$

$$\frac{162x}{162} = \frac{7500}{162}$$

$$x = 46.296$$

46.3% of the games

12. On the written portion of her driving test, Sara answered 84% of the questions correctly. If Sara answered 42 questions correctly, how many questions were on the driving test?

$$\frac{42}{x} = \frac{84}{100}$$

$$84x = 42(100)$$

$$\frac{84x}{84} = \frac{4200}{84}$$

$$x = 50$$

$$x = 50$$

50 questions total

11. On a recent round of golf, Shana made par on 15 out of 18 holes. On what percent of holes did Shana make par? Round to the nearest tenth if necessary.

$$\frac{15}{18} = \frac{x}{100}$$

$$18x = 15(100)$$

$$\frac{18x}{18} = \frac{1500}{18}$$

$$x = 83.\bar{3}$$

par on
83.3%
of holes

13. In a certain small town, 65% of the adults are college graduates. How many of the 240 adults living in the town are college graduates?

$$\frac{x}{240} = \frac{65}{100}$$

$$100x = 65(240)$$

$$\frac{100x}{100} = \frac{15,600}{100}$$

$$x = 156$$

156 adults