

The Percent Proportion (Pages 198–203)

Percent is a ratio that compares a number to 100. Percent means *per hundred* or *hundredths*. You can express a fraction or a ratio as a percent by using a proportion in which one denominator is 100. The **percent proportion** can be used to solve problems with percents. In the percent proportion $\frac{3}{4} = \frac{75}{100}$, 3 is the **percentage** (P), 4 is the **base** (B), and 75 is the percent.

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| Percent Proportion | If P is the percentage, B is the base, and r is the percent, the percent proportion is $\frac{P}{B} = \frac{r}{100}$. |
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EXAMPLES

A Express $\frac{5}{8}$ as a percent.

$$\frac{5}{8} = \frac{r}{100} \quad \text{Write a proportion.}$$

$$5(100) = 8r \quad \text{Find the cross products.}$$

$$500 = 8r$$

$$62.5 = r \quad \text{Divide each side by 8.}$$

So, $\frac{5}{8}$ is equal to 62.5%.

B 20 is what percent of 125?

Use the percent proportion and solve for r .

$$\frac{P}{B} = \frac{r}{100}$$

$$\frac{20}{125} = \frac{r}{100} \quad \text{Replace } P \text{ with 20 and } B \text{ with 125.}$$

$$20(100) = 125r \quad \text{Find the cross products.}$$

$$2000 = 125r$$

$$16 = r \quad \text{Divide each side by 125.}$$

So, 20 is 16% of 125.

PRACTICE

Express each fraction or ratio as a percent.

1. $\frac{4}{5}$

2. 3 to 10

3. 6 out of 5

4. $\frac{5}{20}$

5. Six out of 75 students volunteered to tutor algebra.

Use the percent proportion to find each number.

6. Twelve is what percent of 30?

7. Ten is what percent of 5?

8. What percent of 75 is 50?

9. \$5.60 is what percent of \$8.00?

10. Find 50% of 48.

11. What percent of 40 is 100?

12. 30 is 75% of what number?

13. 24 is 120% of what number?



14. **Standardized Test Practice** How much will you save on a stereo that is marked down 30% if it is normally priced at \$299.99?

A \$210.00

B \$90.00

C \$9.00

D \$8.99

Answers: 1. 80% 2. 30% 3. 120% 4. 25% 5. 8% 6. 40% 7. 200% 8. $66\frac{2}{3}\%$ 9. 70% 10. 24 11. 250% 12. 40 13. 20 14. B