

# Using Proportions to Solve Percent Problems

Pattern for percent proportions:

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

Reduce whenever it's convenient, and solve for "x."

What number is 80% of 15?

$$\frac{15}{15} \cdot \frac{x}{100} = \frac{80}{100} \cdot \frac{315}{315}$$

$$x = \frac{24}{2}$$

$$x = 12$$

80% of 15 is what number?

$$\frac{x}{15} = \frac{80}{100}$$

75% of what number is 45?

$$\frac{45}{x} = \frac{75}{100}$$

$$\frac{4500}{75} = \frac{75x}{75}$$

$$60 = x$$

$$\begin{array}{r} 75 \overline{)4500} \\ \underline{-4500} \\ 00 \end{array}$$

$$\begin{array}{r} 75 \\ \times 6 \\ \hline 450 \end{array}$$

45 is 75% of what number?

$$\frac{45}{x} = \frac{75}{100}$$

12 is what percent of 40?

$$\frac{100}{40} \cdot \frac{12}{100} = \frac{x}{100} \cdot \frac{100}{100}$$

$$30 = x$$

$$30\%$$

What percent of 40 is 12?

$$\frac{12}{40} = \frac{x}{100}$$

$6\frac{1}{2}\%$  of 20 is what number?

6.5%

$$\frac{20}{20} \cdot x = \frac{6.5}{100} \cdot 20$$

$$x = \frac{13}{10} \quad \text{or} \quad x = 1\frac{3}{10}$$

$$1\frac{6.5}{13.0} \times 2$$

4.2 is 1.2% of what number?

100x

$$\frac{4.2}{x} = \frac{1.2}{100}$$

100x LCD

$$420 = 1.2x$$

$$350 = x$$

$$\begin{array}{r} 1.2 \overline{) 420} \\ \underline{-36} \phantom{0} \\ 60 \phantom{0} \\ \underline{-60} \\ 0 \end{array}$$

$$1\frac{12}{60} \times 5$$

What percent of 5 is 3.5?

$$\frac{20}{100} \cdot \frac{3.5}{5} = \frac{x}{100}$$

$$70 = x$$

$$70\%$$

$$1\frac{3.5}{7.0} \times 20$$

What is 140% of 60 trees?

$$60 \cdot \frac{x}{100} = \frac{140}{100} \cdot 60$$

$$x = 84 \text{ trees}$$

$$\frac{214}{84} \times 6$$

94 students is what percent of 26 students?

Round to the nearest tenth of a percent.

$$\frac{94}{26} = \frac{x}{100}$$

$$9400 = 26x$$

$$361.538 = x$$

$$361.5\% = x$$

$$\frac{26}{130} \times 3 = \frac{26}{156} \times 3 = \frac{26}{78} \times 3$$

$4\frac{1}{2}\%$  of what amount is \$18?

$$4.5\% \cdot 100x = \frac{18}{100} = \frac{4.5}{100}$$

$$1800 = 4.5x$$

$$400 = x$$

$$4.5 \cdot 1800 = 8100$$

$$\frac{2 \cdot 45}{180} \times 4 = \frac{2 \cdot 45}{180} \times 4$$

100x LCD