Percents

To change a percent to a decimal, move the decimal point over two places to the left.

85%   1.15%   125%   .5%

$\boxed{.85}$ $\boxed{.0115}$ $\boxed{1.25}$ $\boxed{.005}$

To change a decimal to a percent, move the decimal point over two places to the right.

32.   1.25   .0125   125.00.

$\boxed{32\%}$ $\boxed{125\%}$ $\boxed{1.25\%}$ $\boxed{12,500\%}$

To change a percent to a fraction, write the percent over 100.

85%

$$\frac{85 \div 5}{100 \div 5} = \boxed{\frac{17}{20}}$$

1.15%

$$\frac{1.15}{10000} = \frac{115 \div 5}{10,000 \div 5} = \boxed{\frac{23}{2000}}$$

To change a fraction to a percent, set the fraction equal to $\frac{x}{100}$.

$$\frac{3}{40} \times \frac{x}{100}$$

$$40x = 300$$
$$\frac{40}{40} \quad \frac{300}{40}$$

$$\boxed{x = 7.5\%}$$

$$\begin{array}{r} 7.5 \\ 4\overline{)30.0} \\ -28\downarrow \\ \hline 20 \\ -20 \\ \hline 0 \end{array}$$

$$\frac{36}{125} = \frac{x}{100}$$

$$125x = 3600$$
$$\frac{125}{125} \quad \frac{3600}{125}$$

$$x = 28.$$

$$\begin{array}{r} 28.8 \\ 125\overline{)3600.0} \\ -250\downarrow \\ \hline 1100 \\ 1000 \\ \hline 1000 \\ -1000 \\ \hline 0 \end{array}$$

<u>Percent Word Problems</u>

English	Math Translation
What	x
Is, are, were	=
What percent	$\dfrac{x}{100}$
Of	Multiply

Directions: Find each answer.

1. What is 35% of 45?

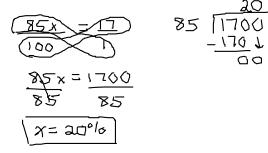$$x = \frac{35}{100} \cdot \frac{45}{1}$$

$$\frac{7}{35} \quad \frac{9}{45}$$

$$\frac{20}{4}$$

$$x = \frac{63}{4}$$

$$\frac{15\,{}^3/4}{4\,\overline{\smash{)}63}}$$
$$\underline{-4\downarrow}$$
$$23$$
$$\underline{-20}$$
$$3$$

$$\boxed{x = 15\,{}^3/4}$$

2. 15 is 70% of what number?

$$15 = \frac{70}{100} \cdot x$$

$$\frac{15}{1} \bowtie \frac{7x}{10}$$

$$\frac{7x}{7} = \frac{150}{7}$$

$$\boxed{x = 21\,{}^3/7}$$

$$\frac{21\,{}^3/7}{7\,\overline{\smash{)}150}}$$
$$\underline{-14\downarrow}$$
$$10$$
$$\underline{-7}$$
$$3$$

3. What percent of 85 is 17?

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

$$\frac{85x}{100} \bowtie \frac{17}{1}$$

$$\frac{85x}{85} = \frac{1700}{85}$$

$$\boxed{x = 20\%}$$

$$\frac{20}{85\,\overline{\smash{)}1700}}$$
$$\underline{-170\downarrow}$$
$$00$$

4. 16 is what percent of 30?

$$16 = \frac{x}{100} \cdot 30$$

$$\frac{16}{1} = \frac{30x}{100}$$

$$\frac{16}{1} \bowtie \frac{3x}{10}$$

$$\frac{3x}{3} = \frac{160}{3}$$

$$\boxed{x = 53\,{}^1/3\%}$$

$$\frac{53\,{}^1/3}{3\,\overline{\smash{)}160}}$$
$$\underline{-15\downarrow}$$
$$10$$
$$\underline{-9}$$
$$1$$

5. 9% of 340 is what number?

$$\frac{9}{100} \cdot \frac{340}{1} = x$$

$$\frac{17}{340} \quad \frac{5}{100}$$

$$\frac{153}{5} = x$$

$$x = \frac{153}{5}$$

$$\boxed{x = 30\,{}^3/5}$$

$$\frac{30\,{}^3/5}{5\,\overline{\smash{)}153}}$$
$$\underline{-15\downarrow}$$
$$03$$