

Algebra For use with 3-9, 3-10, and as Reference

Changing Between Percents, Decimals, and Fractions

*(Go to the other side of this page to see
Equations with Percents, Decimals, and Fractions)*

1. % TO DECIMAL:

Move the decimal point two places to the left and remove the percent sign.

$$56\% = 0.56 \quad 3\% = 0.03 \quad 120\% = 1.20 \text{ or } 1.2$$

(NOTE: Remember that all numbers have a decimal point. If you don't see the decimal point, that's because it's after the last number (the one's place), and if it's not needed, we don't show it. When you do need the decimal point, put it in and use it.)

2. % TO FRACTION:

Place the % number over a denominator of 100, and then reduce if possible.

$$56\% = \frac{56}{100} = \frac{14}{25}$$

$$3\% = \frac{3}{100} \quad 120\% = \frac{120}{100} = \frac{6}{5}$$

ALWAYS reduce if possible, and reduce as much as possible!

3. DECIMAL TO %:

Move the decimal point two places to the right and add the percent sign.

$$0.56 = 56\% \quad 0.03 = 3\% \quad 1.2 = 120\%$$

4. DECIMAL TO FRACTION:

Place the decimal number (without the decimal point) over a denominator with 1 and the number of zeros to match the digits that were after the decimal point. Then reduce if possible.

$$.56 = \frac{56}{100} = \frac{14}{25}$$

$$.03 = \frac{3}{100} \quad 1.2 = \frac{12}{10} = \frac{6}{5}$$

5. FRACTION TO DECIMAL:

The whole point of a decimal is that it's part of 100.

- Some fractions are easy to make a decimal, because the denominator can be changed to 100. In those cases, do so. Then remove the 100 and put a decimal two places to the left. $\frac{2}{5} = \frac{4}{10} = \frac{40}{100} = .4$

- All fractions can be made a decimal by simply dividing. $\frac{5}{16} = 5 \div 16$ Do long division, and you get 0.3125

$$\frac{5}{16}$$

6. FRACTION TO PERCENT:

First change the fraction into a decimal. Then follow number 3 above (**DECIMAL to %**).

Equations with Percents, Decimals, and Fractions

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The following charts are taken from pages 307 and 310, Pre-Algebra, Davison, Landau, McCracken, and Thompson. Prentice-Hall, New Jersey, 2001.

Finding the Percent	Finding the Part	Finding the Whole
BY PROPORTIONS		
What percent of 40 is 6?	What number is 15% of 40? <i>or</i> what is 15% of 40?	6 is 15% of what number?
$\frac{x}{100} = \frac{6}{40}$ ← part ← whole	$\frac{15}{100} = \frac{x}{40}$ ← part ← whole	$\frac{15}{100} = \frac{6}{x}$ ← part ← whole
BY EQUATIONS		
What percent of 40 is 6?	What number is 15% of 40? <i>or</i> what is 15% of 40?	6 is 15% of what number? <i>or</i> 6 is 15% of what?
$\begin{array}{c} \downarrow \downarrow \downarrow \downarrow \downarrow \\ x \cdot 40 = 6 \end{array}$	$\begin{array}{c} \downarrow \downarrow \downarrow \downarrow \downarrow \\ x = 0.15 \cdot 40 \end{array}$	$\begin{array}{c} \downarrow \downarrow \downarrow \downarrow \downarrow \\ 6 = 0.15 \cdot x \end{array}$
<p>(At the end of this one, you must put a percent sign with the answer.)</p>		
<p>A few notes:</p> <ul style="list-style-type: none"> • The word “number” is optional in some of the examples. Get used to seeing and hearing the questions either way. • The equation form is actually one of the steps as you solve the proportion. • Knowing the following things often makes it easier to make equations out of word problems: <ul style="list-style-type: none"> ○ “is” generally means “=” ○ “of” generally means “times” (multiply). 		