

# Decimals, Fractions, and Percentages

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## Converting between Fractions and Decimals:

To find the decimal equivalent of  $\frac{p}{q}$ , divide the number  $p$  by the number  $q$ .

For example,  $\frac{2}{5} = 2 \div 5 = 0.4$ .

To find the fraction equivalent of a decimal, write the number (without the decimal point) on top of the fraction and, on the bottom of the fraction, write a one with zeros after it. The number of zeros is equal to the number of digits on the right of the decimal.

For example,  $23.98045000 = 23.98045 = \frac{2398045}{100000}$ . Divide top and bottom by 5 to see that this is equal to  $\frac{479609}{20000}$ .

## Converting between Decimals and Percentages:

To find the decimal equivalent of a percentage, move the decimal two digits to the left. This is the same as dividing by 100.

For example,  $3.9\% = 3.9 \div 100 = 0.039$

To find the percentage equivalent of a decimal, move the decimal two digits to the right. This can be accomplished by multiplying by 100.

For example,  $3.018 = 301.8\%$ .

## Converting between Fractions and Percentages:

To find the percentage equivalent of  $\frac{p}{q}$ , divide  $p$  by  $q$  and then multiply by one hundred. In other words, convert the fraction to a decimal first.

To find the fraction equivalent of a percentage, divide by 100 (i.e., convert it to a decimal) and then follow the instructions to convert a decimal into a fraction.

Commonly Used Examples:

$$\begin{aligned}1.0 &= 100\% = \frac{1}{1} \\0.5 &= 50\% = \frac{1}{2} \\0.1 &= 10\% = \frac{1}{10} \\0.01 &= 1\% = \frac{1}{100}\end{aligned}$$

$$\begin{aligned}1\% &= 0.01 = \frac{1}{100} \\10\% &= 0.1 = \frac{1}{10} \\25\% &= 0.25 = \frac{1}{4} \\50\% &= 0.5 = \frac{1}{2} \\75\% &= 0.75 = \frac{3}{4} \\100\% &= 1.0 = \frac{1}{1} \\110\% &= 1.10 = \text{frac}1110\end{aligned}$$

$$\begin{aligned}\frac{1}{3} &= 0.3333\dots = 33.3\% \\ \frac{1}{5} &= 0.2 = 20\% \\ \frac{1}{8} &= 0.125 = 12.5\% \\ \frac{1}{20} &= 0.05 = 5\% \\ \frac{2}{3} &= 0.666\dots = 66.7\% \\ \frac{3}{2} &= 1.5 = 150\%\end{aligned}$$