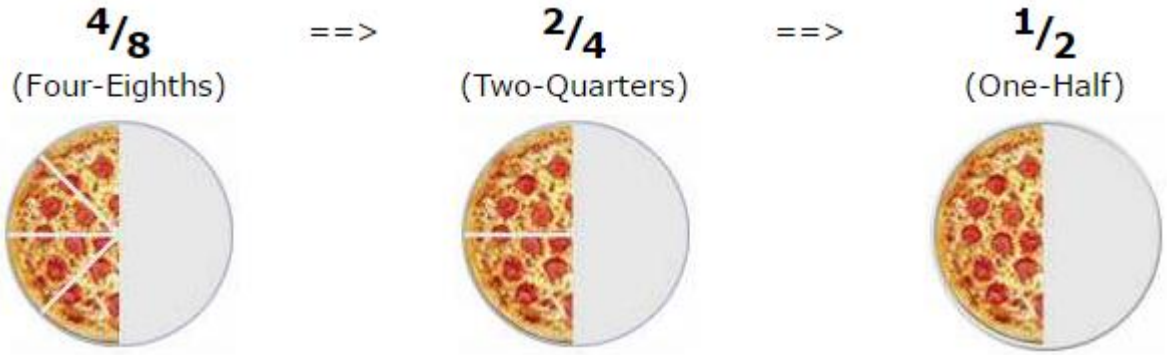
Simplifying/Reducing Fractions

Simplifying (or *reducing*) fractions means

Why write $\frac{4}{8}$ when you can write $\frac{1}{2}$?



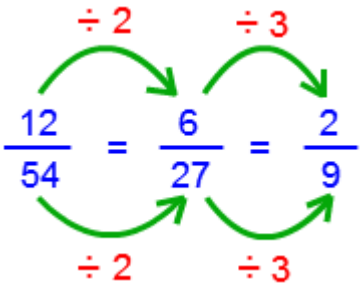
How to Simplify a Fraction:

Try to **evenly divide**

Ex) Simplify the fraction $\frac{12}{54}$

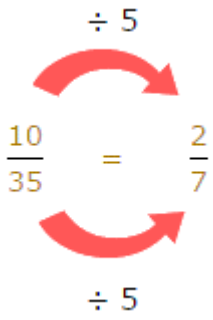
1. We can divide the numerator and denominator both by 2, and we end up with $\frac{6}{27}$ $\frac{12}{54} = \frac{6}{27}$

2. We can simplify further by noticing that we can divide 6 AND 27 by 3 to get $\frac{2}{9}$



Ex 2) Simplify the fraction $\frac{10}{35}$

1. When we try to divide the numerator and denominator both by the same number, we soon realize that 2, 3 and 4 do not divide evenly into both numbers. However, 5 does divide evenly into both numbers, giving us $\frac{2}{7}$



Additional Examples: Simplify the following.

a) $\frac{22}{24} =$

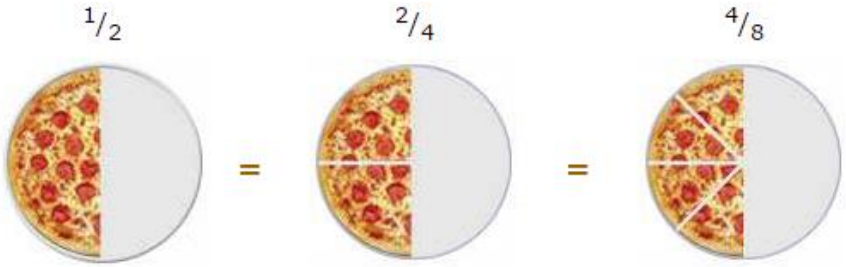
b) $\frac{4}{28} =$

c) $\frac{15}{27} =$

d) $\frac{6}{20} =$

Equivalent Fractions

Equivalent fractions



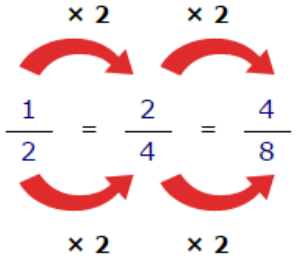
Why are they the same?

The rule to remember is:

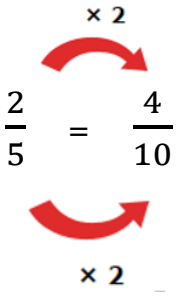
"Change the bottom if you multiply or divide,
And the same to the top must be applied"

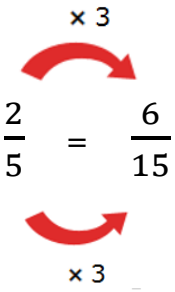
(** What is done to the numerator MUST be done to the denominator, and via versa, for the fractions value to remain the same!!!**)

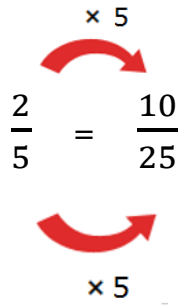
Here is why those fractions are really the same:

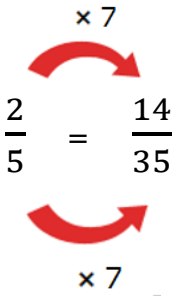


Any given fraction has an infinite amount of equivalent fractions.









Additional examples:

Find 2 fractions that are equivalent to the given fraction.

a) $\frac{3}{8} =$ b) $\frac{2}{3} =$ c) $\frac{7}{9} =$

Now lets try something a bit more challenging. Fill in the empty spaces.

1) $\frac{2}{3} = \frac{\quad}{9}$ 2) $\frac{2}{5} = \frac{\quad}{15}$ 3) $\frac{1}{7} = \frac{\quad}{14}$ 4) $\frac{3}{3} = \frac{\quad}{9}$

5) $\frac{3}{4} = \frac{9}{\quad}$ 6) $\frac{1}{2} = \frac{6}{\quad}$ 7) $\frac{5}{6} = \frac{\quad}{18}$ 8) $\frac{1}{5} = \frac{3}{\quad}$