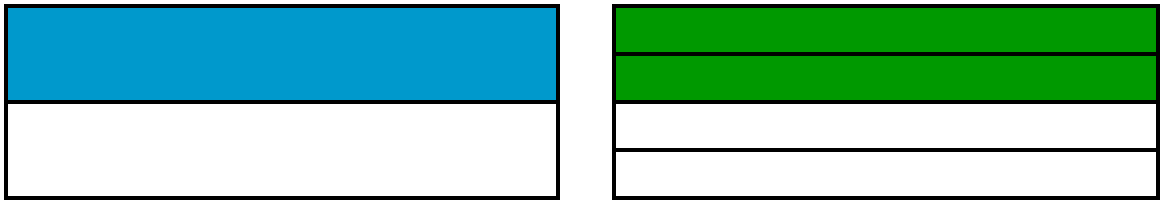
Equivalent Fractions Lesson

Equivalent Fractions

When two or more fractions have the same value then they are called the equivalent fractions. In other words, if two fractions represent the same part of a whole, then they are called the equivalent fractions.

Remember: Equivalent means equal in value.

For Example: Consider the following two rectangles which are shaded as shown:



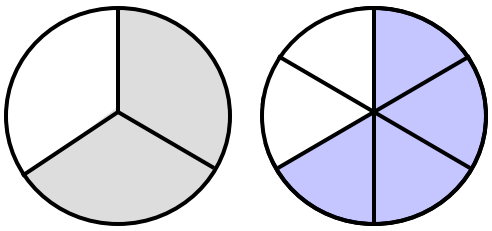
$\frac{1}{2}$ $\frac{2}{4}$

Look at both the rectangles, the blue part in first rectangle is one half and the green part in second rectangle is two fourth. But both the colored parts are equal if we compare both the rectangles and look at colored parts.

Hence, both the colored parts represent the same area in each of the rectangle but represented by different fractions.

Therefore $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.

There are more examples of equivalent fractions given below:



$\frac{2}{3}$ $\frac{4}{6}$

Look at both the circles and pay your attention to the shaded portions of both circles. Both have the fractions written below. But colored parts telling us that both the fractions representing the same shaded are.

Hence 2/3 and 4/6 are equivalent fractions.

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Remember that, two fractions can be equivalent only if they represent the same part of a whole.

For example, $\frac{1}{2}$ and $\frac{2}{4}$ are two equivalent fractions.

Now notice that, in both of the fractions the numerator of the second fraction is two times the numerator of the first fraction. Similarly the denominator of the second fraction is two times the denominator of the first fraction.

It is clear that if the numerator and denominator of a fraction are multiplied by a same number, then the new fraction obtained is the equivalent fraction to the original fraction.

Consider another example of $\frac{1}{2}$ and $\frac{3}{6}$ where the numerator and denominator of the first fraction (which are 1 and 2 respectively) are multiplied by 3 to get a new fraction with numerator and denominator of 3 and 6 respectively. Now both the fractions are equivalent fractions.

Rule # 1 for equivalent fractions:

If the numerator and denominator of one fraction are obtained by multiplying the numerator and denominator of another fraction, then both the fractions are equivalent fractions.

For example, all of the following pairs of fractions are equivalent:

1) $\frac{1}{2} = \frac{2}{4}$	2) $\frac{1}{2} = \frac{3}{6}$	3) $\frac{1}{3} = \frac{2}{6}$
4) $\frac{2}{3} = \frac{6}{9}$	5) $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$	6) $\frac{2}{3} = \frac{4}{6} = \frac{8}{12}$
7) $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$	8) $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16}$	9) $\frac{5}{7} = \frac{10}{14} = \frac{15}{21}$