Number lines and Fractions

A number line is a convenient way to understand fractions especially negative fractions. We will see later, for example that:

$$-\frac{3}{4} = \frac{-3}{4} = \frac{3}{-4}$$

Since fractions are points on a **number** line, they can be:

- added
- subtracted
- multiplied
- divided

Integers can be written as fractions

Any integer m can be written as: $\frac{m}{1}$

For example,

$$3 = \frac{3}{1}, \text{ and } \quad -5 = \frac{-5}{1}$$

The set of fractions includes the set of integers, written this way.

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Equivalent Fractions

Before addition, subtraction, multiplication, and division of fractions can be defined, it is necessary to understand when two fractions represent the same point on a number line.

That is, when do two fractions represent the same **number**?

The next few slides help to answer this question.

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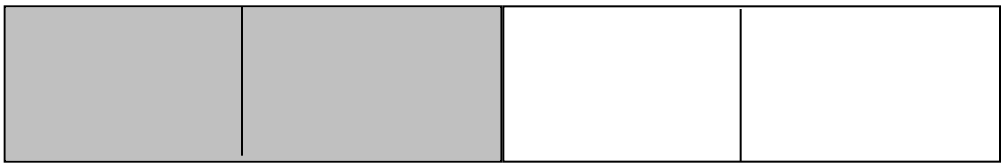
Equivalent Fractions

Fractions of equal value

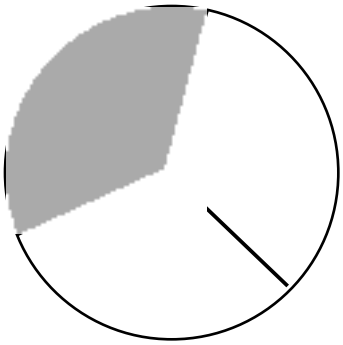
$\frac{1}{2}$

$\frac{2}{4}$

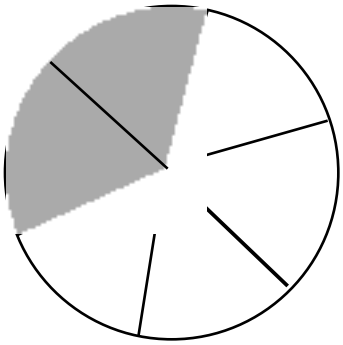


$\frac{4}{8}$

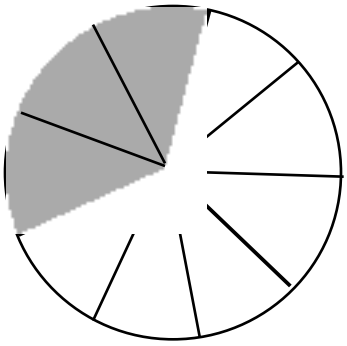
$\frac{1}{3}$



$\frac{2}{6}$



$\frac{3}{9}$



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