

## Lesson 85: Opposites

Since  $-2$  (negative 2) and  $+2$  (positive 2) are opposites,  $-2$  is often referred to as the "opposite" of 2 instead of negative 2.

$-(-2)$  is the opposite of the opposite of 2 which is 2.

If there are an odd number of negative signs, the answer is negative. If there are an even number of negative signs the answer is positive.

$$(-\{-[-(-7)]\}) = 7 \quad (4 \text{ negative signs} = \text{positive})$$

The same in multiplication:

$$(-2)(-2)(-2)(-2)(-2) = -32 \quad (5 \text{ negative signs} = \text{negative})$$

The order of operations for signed numbers is the same as all numbers.

ex:  $2(-4) - 3 - (-6)(-3)$

$$\begin{array}{r} -8 \\ -3 \\ -18 \\ \hline -29 \end{array}$$

Do Multiplication -  
Combine

ex:  $-(-2) - (-2)(-4)$

$$\begin{array}{r} 2 \\ -8 \\ \hline -6 \end{array}$$

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## Lesson 87: Rate Problems or Ratio Problems

A rate is a ratio of 2 quantities. If 7 apples cost \$2, we can write 2 ratios.

$$\frac{7 \text{ apples}}{2 \text{ dollars}} / \frac{2 \text{ dollars}}{7 \text{ apples}}$$

How much would 10 apples cost.  
(we use a unit multiplier)

$$\frac{10 \text{ apples}}{1} \cdot \frac{2 \text{ dollars}}{7 \text{ apples}} = \frac{20}{7} \text{ dollars} / \text{approx. } \$2.84$$

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