Pre-Algebra
Operating with Real Numbers

Absolute Value

The absolute value of something is the distance it is from zero. The easiest way to get the absolute value of a number is to eliminate its sign. Absolute values are always positive or 0.

$|-5| = 5$ $\quad |3| = 3$ $\quad |0| = 0$ $\quad \left|-\frac{3}{4}\right| = \frac{3}{4}$ $\quad |1.5| = 1.5$

Adding and Subtracting Real Numbers

Adding Numbers with the Same Sign:

- Add the numbers without regard to sign.
- Give the answer the same sign as the original numbers.
- Examples:

$$(-6) + (-3) = -9$$
$$12 + 6 = 18$$

Adding Numbers with Different Signs:

- Ignore the signs and subtract the smaller number from the larger one.
- Give the answer the sign of the number with the greater absolute value.
- Examples:

$$(-6) + 3 = -3$$
$$(-7) + 11 = 4$$

Subtracting Numbers:

- Change the sign of the number or numbers being subtracted.
- Add the resulting numbers.
- Examples:

$$(-6) - (-3) = (-6) + 3 = -3$$
$$13 - 4 = 13 + (-4) = 9$$

Multiplying and Dividing Real Numbers

Numbers with the Same Sign:

- Multiply or divide the numbers without regard to sign.
- Give the answer a "+" sign.
- Examples:

$$(-6) \cdot (-3) = +18 = 18$$
$$12 \div 3 = +4 = 4$$

Numbers with Different Signs:

- Multiply or divide the numbers without regard to sign.
- Give the answer a "-" sign.
- Examples:

$$(-6) \cdot (3) = -18$$
$$12 \div (-3) = -4$$