

## Algebraic Expressions - Combining Like Terms

**Definitions:** A **variable** is a letter that can represent a variety of different numbers. A **constant** is a number in an expression that stays the same. An **algebraic expression** is a combination of variables and/or numerals, often with operation signs and grouping symbols. The parts of an algebraic expression that are being added or subtracted are called **terms**. **Like terms** are either constant terms or terms containing the same variable raised to the same powers.

### Combining Like Terms

We use the distributive property in order to combine like terms. We factor out the common factor and add the numerical coefficients.

$$5x + 3x = (5 + 3)x = 8x$$

#### Example:

a)  $5x + 3x - 8x - 11$

b)  $5x - 2 - 3x - 8$

c)  $\frac{1}{2}x + 2 - \frac{2}{3}x - 4$

d)  $3 - 2.5x + 2.1 + 3.2x + 8$

**Using the distributive property to remove parentheses**

**Example:**

a)  $-(5x + 3)$

b)  $-2(2 - 4x)$

c)  $-3(2x - 7 + y)$

d)  $-0.9(-5 + 5x - 9 - 1.1y)$

**Simplify:**

e)  $-2(1 - 3x) + 3(-3x + 2)$

f)  $-(3 - 2x) - 2(-2x + 1)$

g)  $-\frac{1}{2}(2 - x) - \frac{1}{3}(-x - 1)$