

# Combining Like Terms

- In algebraic expressions, like terms have 2 important things in common.

**Like terms must have the same variable raised to the same power (exponent)**

2.) 4 = 4'

- A variable with no coefficient has a coefficient of one.
- Terms take the operation symbol directly to the left of the coefficient.
- Constants are like terms
- Highlight the like terms in the same color:

$$5x + 20 + 3x^2 + 2x - x^2 - 9$$

- Simplify each expression:

$y + y + y + y + x$ $4y + x$	$3x + 2y - x + 7y$ $2x + 9y$
$5 + 8x^2 + 2x^2 - 3x$ $10x^2 - 3x + 5$	$2z - 4x + z + 9$ $3z - 4x + 9$

# Combining Like Terms Vocabulary

<p>Definition</p> <p>Terms with the same variable and exponent</p>	<p>Algebraic Example</p> <p><math>4z^2</math> and <math>-z^2</math></p> <p><math>3z^2</math></p>
<p><b>Like Terms</b></p>	
<p>Examples</p> <p><math>12y</math> <math>-3y</math></p> <p><math>7</math> <math>12</math></p> <p><math>x^2</math> <math>2x^2</math></p>	<p>Non-Examples</p> <p><math>x</math> and <math>x^2</math></p> <p><math>y</math> and <math>z</math></p>

2.)  $4 = 4$

<p>Definition</p> <p>Number being multiplied by a variable</p>	<p>Algebraic Example</p> <p><math>4x</math></p> <p><math>12y</math></p>
<p><b>Coefficient</b></p>	
<p>Examples</p> <p><math>3y^2</math></p> <p><math>-2x</math></p>	<p>Non-Examples</p> <p><math>12</math> <math>0</math></p> <p><math>15</math> <math>y</math></p> <p><math>x</math></p> <p><math>z^2</math></p>

<p><math>y + y + y + y + x</math></p> <p><math>4y + x</math></p>	<p><math>3x + 2y - x + 7y</math></p> <p><math>2x + 9y</math></p>
<p><math>5 + 8x^2 + 2x^2 - 3x</math></p> <p><math>10x^2 - 3x + 5</math></p>	<p><math>2z - 4x + z + 9</math></p> <p><math>3z - 4x + 9</math></p>