

Do Now

1) Circle the terms that are like terms.

$$\textcircled{4n} \quad \textcircled{-9n} \quad 6a \quad \textcircled{14n} \quad 5n^2 \quad 7 \quad \textcircled{\frac{1}{2}n}$$

2) Simplify the following expressions:

a)  $5x + 1x - 3$

$6x - 3$

b)  $-9x + 12 + x - 7$

$-8x + 5$

c)  $-3(x - 8)$

$-3x + 24$



d)  $3x + 8(x - 5) + 4$

$3x + 8x - 40 + 4$

$11x - 36$

Lesson #46 - Adding Algebraic Expressions

The same rules that we learned for adding integers and rational numbers apply to adding algebraic expressions.

Example 1) Find the sum of  $(2x + 1)$  and  $(5x)$ 

$(2x + 1) + (5x)$

$2x + 1 + 5x \rightarrow 7x + 1$

Example 2) Find the sum of  $(-3a + 2)$  and  $(5a - 3)$ 

$(-3a + 2) + (5a - 3)$

$-3a + 2 + 5a - 3 \rightarrow 2a - 1$

Now, You Try!3) Find the sum of  $(10x + 5)$  and  $(3x - 1)$ 

$(10x + 5) + (3x - 1)$

$10x + 5 + 3x - 1$

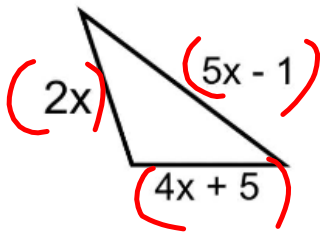
$13x + 4$

4) Find the sum:  $(-2y - 3) + (y - 5)$ 

$-2y - 3 + y - 5$

$-1y - 8$

**Example 4)** Write an expression to find the perimeter of the triangle below. Simplify the expression completely.



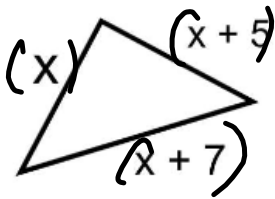
$$(2x) + (5x - 1) + (4x + 5)$$

$$2x + 5x - 1 + 4x + 5$$

$$11x + 4$$

**Now, You Try!**

5) Write an expression to find the perimeter of the triangle below. Simplify the expression completely.



$$x + 5 + x + 7 + x$$

$$3x + 12$$

**On Your Own!**

<p>6) Find the sum of <math>7x + 8</math> and <math>3x + 12</math></p> $(7x + 8) + (3x + 12)$ $7x + 8 + 3x + 12$ $10x + 20$	<p>7) Find the sum: <math>(6a - 3b + 4) + (7a - 6)</math></p> $(6a - 3b + 4) + (7a - 6)$ $6a - 3b + 4 + 7a - 6$ $13a - 3b - 2$
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**Simplify the following.**

<p>8) <math>-2a + 8b - 6a + 3b</math></p> $-8a + 11b$	<p>9) <math>-14x + 9y - 6x</math></p> $-20x + 9y$	<p>10) <math>-(4x - 9)</math></p> $-4x + 9$
<p>11) <math>9x - 3(2x + 8)</math></p> $9x - 6x - 24$ $3x - 24$	<p>12) <math>(-3x^2 + 11) + (x^2 - 10)</math></p> $-2x^2 + 1$	<p>13) <math>6a + 5 + 7(a - 1)</math></p> $6a + 5 + 7a - 7$ $13a - 2$