

Combining Expressions

March 6, 2017

Mr. Collin



Adding Expressions

- Adding expressions together is really the same as combining like terms
- Lets review combining like terms



Combining Like Terms

Let's do the following together:

$$\underline{4a} + \underline{-7b} + \underline{3a} + 9 + \underline{5b} + \underline{-a}$$

$$[4a + 3a + (-a)] + [(-7b) + 5b] + 9$$

$$6a + (-2b) + 9$$

$$\boxed{6a - 2b + 9}$$



Now You Try

Simplify the following:

$$\underline{4s} - \underline{3t} + \underline{5t} - \underline{s} + \underline{t}$$

$$3s + 3t$$



Practice

Simplify the following:

1) $4x - 3y + 2y - x$

2) $8m + 4m - 2n - 3m$

3) $4 + 3p - 6q + 2p + q$

4) $12c - 7d + 4d - 10c - 2c$



Adding Expressions

- Let's look at a word problem that involves adding expressions



Adding Expressions

A kennel has four cats and seven dogs housed in it. Today, they had several people show up to drop off their pets, and ended up with five more cats and eight dogs. How many of each pet is now housed in the kennel?



Adding Expressions

- We can use the associative and commutative properties to just drop the parentheses and rearrange them.
- Example: $(\underline{2x} + \underline{4y}) + (\underline{7x} - \underline{6y})$

$$9x - 2y$$



Now You Try

- Add the following

1) $(3x + 7) + (4x + 9)$ $7x + 16$

2) $(4m - 6n) + (-3m + 4n)$ $m - 2n$

3) $(2a - 4b) + (3a + 7b)$ $5a + 3b$

4) $(3x + 4y + 5) + (2x - 7)$ $5x + 4y - 2$

5) $(2c + 4d - 6) + (4c - d + 8)$ $6c + 3d + 2$



Word Problem

A theater has sold 50 adult tickets and 35 child's tickets to an upcoming show. Tomorrow, they sell 30 more adult tickets and 10 child's tickets. How many of each ticket will they have sold in total after tomorrow?

Combining Expressions

March 7, 2017

Mr. Collin



Warmup

Add the following expressions:

$$1) \quad (\underline{3x} + \underline{5y}) + (\underline{4x} + \underline{y}) \quad 7x + 6y$$

$$2) \quad (\underline{4c} + \underline{d}) + (\underline{2c} + \underline{9d}) \quad 6c + 10d$$

$$3) \quad (\underline{5a} + \underline{2b}) + (\underline{3a} + \underline{-4b}) \quad 8a - 2b$$

$$4) \quad (\underline{6r} - \underline{5}) + (\underline{-2r} + \underline{7}) \quad 4r + 2$$



Trade and Grade

- If you received a stamp, you will trade your homework with the person sitting next to you (or someone else near you)
- When you get another person's homework, write your name in the "Corrected By" line at the bottom



Trade and Grade

1) $5x + 11$

2) (typo)

$9m + 4$

3) $7a + 2$

4) $5r$

5) $-6k + 7$

6) $15w - 16$

7) $5a - 4b - 3$

8) $x - y + 2$

9) $33m + 22$

10) $7x - 23$

11) $11a + 7$

12) $17r$

13) $-19n + 10$



Trade and Grade

- If seven or more answers are correct and there is a stamp on the page, write “4” in the score box
- If six or fewer answers are correct, then write “2” in the score box



Subtracting Expressions

- To subtract expressions, we need to distribute the negative sign
- Example: $(3x + 4y) - (5x - 6y)$

$$\begin{array}{r} \underline{3x + 4y} - \underline{5x + 6y} \\ -2x + 10y \end{array}$$



Now You Try

Subtract the following:

$$(5x + 7y) - (2x + 6y)$$

$$\underline{5x} + 7y - \underline{2x} - 6y$$

$$3x + y$$



Now You Try

Subtract the following:

- 1) $(3m + 4n) - (m + 3n)$ $2m + n$
- 2) $(5a + 4b) - (6a + 2b)$ $-a + 2b$
- 3) $(-2c + 9d) - (4c - 3d)$ $-6c + 12d$
- 4) $(4h - 3k) - (-3h - 3k)$ $7h$

Combining Expressions

March 8/9, 2017

Mr. Collin



Warmup

Simplify the following expressions:

$$1) \quad (\underline{2x} + \underline{7y}) + (\underline{x} + \underline{2y}) \quad 3x + 9y$$

$$2) \quad (\underline{3c} + \underline{8d}) - (\underline{2c} + \underline{5d}) \quad c + 3d$$

$$3) \quad (\underline{5a} - \underline{3b}) + (\underline{-3a} + \underline{b}) \quad 2a - 2b$$

$$4) \quad (\underline{3r} - \underline{5s}) - (\underline{+2r} + \underline{7s}) \quad 5r - 12s$$

$$3r - 5s + 2r - 7s$$



Trade and Grade

- If you received a stamp, you will trade your homework with the person sitting next to you (or someone else near you)
- When you get another person's homework, write your name in the "Corrected By" line at the bottom



Trade and Grade

1) $-c - 9d$

2) $k + 10$

3) 2

4) $6x - 8y$

5) $-9a + 6b$

6) $8s$

7) $g - 4h + 14$

8) $4n + 1$

9) $2n + 10$

10) $5n + 3$

11) $8n - 3$

12) $6n - 2$

13) $3n$

14) $3n - 6$



Trade and Grade

- If eight or more answers are correct and there is a stamp on the page, write “4” in the score box
- If seven or fewer answers are correct, then write “2” in the score box



Review of Integers

- Let's review how to add positive and negative integers



Review of Integers

- If you are adding two numbers with the same sign, add their absolute values
 - Example: $-6 + (-8)$
- If you are adding two numbers with opposite signs, subtract their absolute values
 - Example: $-5 + 12$



Review of Integers

- The answer will have the same sign as the bigger number
- Let's try one together:

$$4 + (-7)$$

$$-3$$



Now You Try

Add the following integers:

$$1) \quad 2 + (-4) = -2$$

$$2) \quad 9 + (-5) = 4$$

$$3) \quad -8 + (-2) = -10$$

$$4) \quad -7 + 11 = 4$$

$$5) \quad -5 + 2 = -3$$

$$6) \quad -11 + (-3) = -14$$

$$7) \quad 9 + (-3) = 6$$

$$8) \quad 6 + 8 = 14$$



Subtracting Expressions

- Let's do one more together:

$$(3a + 7b - 4) - (-a + 4b - 4)$$

$$\underline{3a} + 7b - 4 + a - 4b + 4$$

$$4a + 3b$$



Let's Mix It Up

Add or subtract:

1) $(3a + 4b) + (2a - 5b)$

2) $(5x - 4y + 2) - (4x + 6y - 3)$

3) $(3r - 2s) - (2r + 6s + 4)$

4) $(7h - 3k) + (-4h + 4k)$

5) $(9c - 4d + 2) - (10c + d - 7)$



Putting It All Together

Let's use what we know to simplify a more difficult one:

$$3(4a + 2b) - 2(5a - 6b)$$

$$12a + 6b - 10a + 12b$$

$$2a + 18b$$



Now You Try

Simplify the following:

$$4(x + 2y) + 2(3x - y)$$

$$4x + 8y + 6x - 2y$$

$$10x + 6y$$



On Your Own

Simplify the following:

$$1) \quad 3(a + 2b) + 2(3a + b) \quad 9a + 8b$$

$$2) \quad 4(m + 3n) - 2(m + 4n) \quad 2m + 4n$$

$$3) \quad -2(5x + y) + 3(2x - 2y) \quad -4x - 8y$$

$$4) \quad 4(3m - n) - 3(4m + 2n) \quad -10n$$