AIM: 2-9 Combining Like Terms Using the Distributive Property

① Distribute
② Combine like terms

Name _____ Date _____

Ms. Piccolo Math 6 - Period _____

Warm-up: Identify the expression that is not equivalent to the other three. Show work to support your answer.

Distributive Property

$1x + 2 + 3x$ $1x + 3x$ $4x + 2$	$4(x + 2)$ $4(x) + 4(2)$ $4x + 8$
$7 + 4x - 5$ $7 - 5$ $4x + 2$	$4x + 2$ not like terms

Let's Investigate: Using the DISTRIBUTIVE PROPERTY to simplify algebraic expressions.

Simplify the expressions below. Distribute, where necessary, and then use different shapes or colors to combine like terms!

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

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

$6x + 9 - 4x$

$6x - 4x$

$2x + 9$

2) $4y + 4(x + 3) + 7y - 10$

$4y + 4(x) + 4(3) + 7y - 10$

$4y + 4x + 12 + 7y - 10$

$4y + 7y + 4x + 12 - 10$

$11y + 4x + 2$

*Standard form:

$4x + 11y + 2$

Now You Try!

Simplify the expressions below. Distribute, where necessary, and then use different shapes or colors to combine like terms!

1) $6 + 9(3y + 8)$

$6 + 9(3y) + 9(8)$

$6 + 27y + 72$

$27y + 78$

2) $7(8y + 5) - 5y$

$7(8y) + 7(5) - 5y$

$56y + 35 - 5y$

$56y - 5y$

$51y + 35$

3) $4(x + 3) + 5(x + 2)$

$9x + 22$

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

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

$6a + 4b - 4b$

$+4b - 4b$

$6a + 0b$

$6a + 0$

$6a$

5) Emily has t tickets to see a play on Broadway. Allie has twice (×2) the amount of tickets that Emily has. Gabi has five more tickets than Allie.

a) Complete the 'Let' statements below to represent the amount of tickets each girl has.

Let ___t___ = Amount of tickets Emily has

Let ___2t or t·2___ = Amount of tickets Allie has

Let ___2t + 5___ = Amount of tickets Gabi has

b) Write an algebraic expression, in simplest form, to represent the total (add) amount of tickets.

Emily + Allie + Gabi = Total

1t + 2t + 2t + 5

5t + 5

c) If Emily has 4 tickets, how many tickets do the other girls have and what is the total amount of tickets combined?

Emily t = 4

Allie 2t = 2·4 = 8

Gabi 2t + 5 = 2·4 + 5 = 13

Total # of tix:

13
8
+ 4
25 total tickets

6) a) Write an algebraic expression to represent the perimeter of the rectangle below.
Hint: Perimeter means to add ALL FOUR SIDES!

mm = millimeters

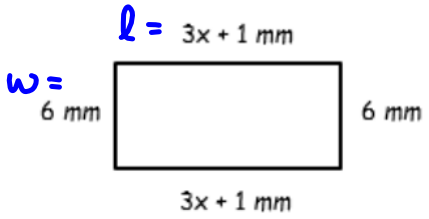
$P = 2l + 2w$

$2(3x+1) + 2(6)$

$2(3x) + 2(1) + 12$

$6x + 2 + 12$

$P = 6x + 14$ mm



$3x+1 + 3x+1 + 6 + 6$

$6x + 14$ mm

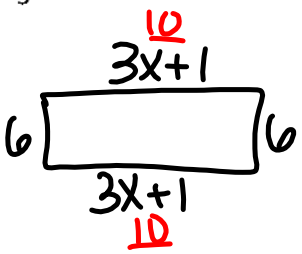
b) If the value of x is 3, what is the perimeter of the rectangle in mm?

$P = 6x + 14$ mm

$6(3) + 14$

$18 + 14$

$P = 32$ mm



10
10
6
+ 6
32 ✓