November 20, 2013

Algebra 4-5: The Opposite of a Sum or Difference

Multiply
(-)(-) = +
(+)(+) = +
(-)(+) = -
(+)(-) = -

Warm-Up

Simplify.

1. -1(5)

-5

2. -1(-3)

3

3. -1(y)

-y

4. -1(-x)

x

5. -1(5x) + 6y

-5x+6y

6. -1(4y) – (-1)(3y)

-4y+(-1)(3y)

-4y+3y = -1y

Algebra 4-5: The Opposite of a Sum or Difference

Fill in the blank.

If there is no number in front of a variable, then we assume it is 1.

-(b + c) = -1b + -1c

-(a - c) = -1a + c

-1(a + -c) = -a + c

Examples

Simplify.

1. –(k + 23)

-k - 23

-1(k + 23)

2. –(6c – 5)

-6c + 5

-1(6c - 5)

3. (3y + 8) –(2y – 7)

1y + 15

3y + 8 - 2y + 7

4. $-(4x - 13) + (-5x - 3)$

$-4x + 13 + -5x - 3$

$-9x + 10$

5. $\frac{3x}{2} - \frac{(x+6)}{4}$

$\frac{6x - 1(x+6)}{4} = \frac{6x - 1x - 6}{4}$

$\frac{5x - 6}{4}$

Solve and check.

6. $47z - (9 + 23z) = 3$

$47z - 9 - 23z = 3$

$24z - 9 = 3$

$+9 \quad +9$

$\frac{24z}{24} = \frac{12}{24}$

$z = .5 = \frac{1}{2}$

7. $-3(y - 6) - (2y + 8) = 20$

$-3y + 18 - 2y + -8 = 20$

$-5y + 10 = 20$

$-10 \quad -10$

$\frac{-5y}{-5} = \frac{10}{-5}$

$y = -2$