

# Teaching Notes for Algebra I

## Homework #3

Overview: In this lesson, students will learn about “who plays together” and substituting numbers in for letters.

Preparation: Watch videos on “who plays together” and “substitution”

Classroom Examples:

1) Simplify:  $\frac{-x - y^3}{-2a - z^2}$  if  $x = -3$ ,  $y = -1$ ,  $a = -2$ , and  $z = -4$

$$\frac{-1(-3) - 1(-1)^3}{-2(-2) - 1(-4)^2}$$

$$\frac{-(-3) - (-1)}{-2(-2) - (16)}$$

$$\frac{3 + 1}{4 - 16}$$

$$\frac{4}{-12}$$

$$\frac{1}{-3}$$

$$\frac{4}{-12}$$

$$\frac{4}{-12}$$

$$\frac{1}{-3}$$

$$\frac{1}{-3}$$

2) Simplify:  $2x^3 - 4 + x^2 + 7x - 5x^3 - 1$   
 $-3x^3 + x^2 + 7x - 5$

3) Simplify:  $-5a - 2(3a - 1) - 8^0 - (-1 - 1)^2 + 6a$

$$-5a - 2(3a - 1) - 8^0 - 1(-2)^2 + 6a$$

$$-5a - 2(3a - 1) - 1 - 1(4) + 6a$$

$$-5a - 6a + 2 - 1 - 4 + 6a$$

$$-5a - 3$$

## Teaching Notes for Algebra I Homework #3

4) Simplify:  $\frac{4a - b^3}{-c^0 - d}$  if  $a = -4$ ,  $b = -2$ ,  $c = -11$ , and  $d = -4$

$$\frac{4(-4) - 1(-2)^3}{-1(-11)^0 - 1(-4)}$$
$$\frac{4(-4) - 1(-8)}{-1(1) - 1(-4)}$$
$$\frac{-16 + 8}{-1 + 4}$$
$$\frac{-8}{3}$$

5) Simplify:  $-3(5x - 2) - 30 \div 6(-2 - 3) - 8x$

$$-3(5x - 2) - 30 \div 6(-5) - 8x$$
$$-15x + 6 + 25 - 8x$$
$$-23x + 31$$

6) Simplify:  $-2(3y - 4) - (-1 - 1)^4 - 7(8x^4 y^7 a)^0 + 6y$

$$-2(5y - 4) - 1(-2)^4 - 7(8x^4 y^7 a)^0 + 6y$$
$$-2(5y - 4) - 1(16) - 7(1) + 6y$$
$$-10y + 8 - 16 - 7 + 6y$$
$$-4y - 15$$