

**5-2 Substitution****Algebra!**

Circle your answer.

**Solve systems of equations by substitution**

1.  $y = 3x$   
 $x + 2y = -21$

$$x + 2 \cdot 3x = -21$$

$$x + 6x = -21$$

$$\frac{7x}{7} = \frac{-21}{7}$$

$$x = 28 \text{ or } -3$$

2.  $x + 5y = -3$   
 $3x - 2y = 8$

a.  $x = -5y - 3$

$$3(-5y - 3) - 2y = 8$$

$$-15y - 9 - 2y = 8$$

$$-17y - 9 = 8$$

$$+9 \quad +9$$

$$-17y = 17$$

$$y = -1 \text{ or } 17$$

b.  $x = -5(-1) - 3$

$$x = 5 - 3$$

$$x = 8 \text{ or } 2$$

3.  $y = -6$   
 $4x + y = 2$

$$4x + -6 = 2$$

$$4x - 6 = 2$$

$$+6 \quad +6$$

$$\frac{4x}{4} = \frac{8}{4}$$

$$x = 12 \text{ or } 2$$

4.  $x = 2$   
 $3x - y = 8$

$$3 \cdot 2 - y = 8$$

$$6 - y = 8$$

$$-6$$

$$-6$$

$$-y = \frac{2}{-1}$$

$$y = 1 \text{ or } -2$$

5.  $y = -x$   
 $Y = 2x - 6$

$$-x = 2x - 6$$

$$-2x \quad -28$$

$$-3x = \frac{-6}{-3}$$

$$-3 \quad -3$$

$$x = 2 \text{ or } -9$$

6.  $x - 2y = -2$   
 $3x + y = 6$

$$x = 2y - 2$$

a.  $3(2y - 2) + y = 6$

$$6y - 6 + y = 6$$

$$7y = 12$$

$$y = 12/7 \text{ or } 19$$

b.  $x = 2(\frac{12}{7}) - 2$

$$x = \frac{24}{7} - \frac{14}{7}$$

$$x = \frac{10}{7} \text{ or } 17$$