NAME _____ DATE _____ PERIOD _____

6-2 Substitution

Exercises:

Use substitution to solve each system of equations.

1. $y = 4x$
$3x - y = 1$

(-1, -4)

2. $x = 2y$
$y = x - 2$

(4, 2)

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

No Solution

4. $x - 2y = -1$
$3y = x + 4$

(5, 3)

5. $x - 4y = 1$
$2x - 8y = 2$

Inf. Solutions

6. $x + 2y = 0$
$3x + 4y = 4$

(4, -2)

1. **SPORTS** At the end of the 2007–2008 football season, 38 Super Bowl games had been played with the current two football leagues, the American Football Conference (AFC) and the National Football Conference (NFC). The NFC won two more games than the AFC. How many games did each conference win?

$A + N = 38$ NFC = 20
$N - A = 2$ AFC = 18

2. **GEOMETRY** The perimeter of a triangle is 24 inches. The longest side is 4 inches longer than the shortest side, and the shortest side is three-fourths the length of the middle side. Find the length of each side of the triangle.

$8 = x$, $\frac{3}{4}x + 4 = 10$, $6 = \frac{3}{4}x$

$x + \frac{3}{4}x + \frac{3}{4}x + 4 = 24$
$2.5x + 4 = 24$
$2.5x = 20$
$x = 8$

6, 8, 10

3. **MONEY** Harvey has some $1 bills and some $5 bills. In all, he has 6 bills worth $22. Let x be the number of $1 bills and let y be the number of $5 bills. Write a system of equations to represent the information and use substitution to determine how many bills of each denomination Harvey has.

$x + y = 6$
$1x + 5y = 22$

4 - $5 bills
2 - $1 bills

NAME _____ DATE _____ PERIOD _____

6-2 Substitution

Use substitution to solve each system of equations.

1. $y = 4x$
$x + y = 5$
(1, 4)

2. $y = 2x$
$x + 3y = -14$
(-2, -4)

3. $y = x - 1$
$x + y = 3$
(3, 2)

4. $x = y - 7$
$x + 8y = 2$
(8, -2)

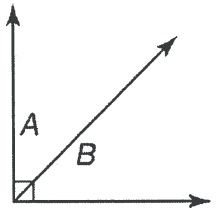
5. $y = 4x - 1$
$y = 2x - 5$
(-2, -9)

6. $y = 3x + 8$
$5x + 2y = 5$
(-1, 5)

7. $x + 2y = 13$
$3x - 5y = 6$
(7, 3)

8. $x + 5y = 4$
$3x + 15y = -1$
No Solution

9. GEOMETRY The measures of complementary angles have a sum of 90 degrees. Angle A and angle B are complementary, and their measures have a difference of 20°. What are the measures of the angles?



$a + b = 90$
$a - b = 20$

35°, 55°