Name: _____   Date: _____

Practice: Solve Linear Systems by Substitution

1. Use the substitution method to solve each linear system.
a) $x + y = -4$
$y = 2x - 1$
b) $3x + y = 7$
$2x - y = -2$
c) $2x + y = -2$
$x - 2y = 4$
d) $-3x + 2y = 0$
$x + y = -5$

2. Solve each linear system.
a) $2x - 2y = -1$
$5x + y = 2$
b) $4x - 2y = 2$
$-x + 5y = -2$
c) $3x - y = -3$
$4x + 6y = 7$
d) $2x - 3y = -5$
$4x + 5y = 23$

3. Solve each linear system using the substitution method.
a) $2x - 3y = 25$
$3x + y = -1$
b) $5x - 2y = -8$
$-x + 3y = -1$
c) $x + 4y = 11$
$5x - 2y = -11$
d) $-3x + 7y = 12$
$x - 5y = -4$

4. Ari is 5 years older than Sasha. The sum of their ages is 38.
a) Write an equation to represent the information in the first sentence.
b) Write an equation to represent the information in the second sentence.
c) Use the method of substitution to find the ages of the boys.

5. For Megan's sixteenth birthday, her parents are planning a party. Tony's Pizzeria charges $150 for the party room and $12 per guest for the cost of food. Hamburger Joey charges $180 for the party room and $10 per guest.
a) Write a system of linear equations to represent the situation.
b) How many guests must attend for the charges to be the same? Solve by substitution.

6. A cotton candy machine was rented for the school fun fair. It cost $120 plus $1 per serving for supplies. The student council plans to sell cotton candy for $2.50 each. Let C represent the cost of the cotton candy. Let n represent the number of servings sold.
a) Write an equation to show the total cost for operating the cotton candy machine.
b) Write an equation to show the revenue made from selling the cotton candy.
c) How many people must buy cotton candy in order to break even?

7. Manny's grandparents own a farm with a total of 30 cows and chickens. There are 4 times as many chickens as there are cows.
a) Write a system of linear equations to represent this information.
b) How many cows and how many chickens are there on the farm?

8. Punjab collects quarters and dimes. So far, she has a total of $21. There are 14 more quarters than dimes. How many dimes are there?

9. On a math test, a multiple choice question that is answered correctly is awarded 1 point. A short response question is awarded 2 points. Gene answered 12 questions correctly for a total score of 17 points.
a) Write a system of linear equations to represent this information.
b) How many multiple choice questions did Gene answer correctly?