Chapter 5 Review
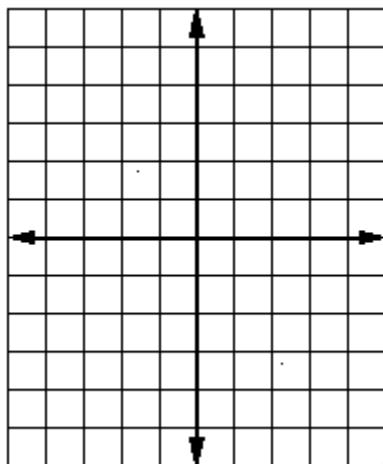
1. Is this ordered pair a solution of the given linear system? (2,-6)

$$8x + 2y = 4$$
$$-4x = -5y - 38$$

2. Find the solution to the system below graphically:

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

3. Solve this system algebraically (substitution or elimination)

$$3x + y = -29$$
$$-6x + 2y = 62$$

4. Solve this system algebraically (substitution or elimination)

$$2x = -6y + 30$$
$$-3x - 9y = -45$$

5. Solve using determinants.

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

6. Solve.

$$x + 2y + z = 2$$
$$3x - 6y + 2z = 2$$
$$2x - z = 8$$

7. You are in charge of catering a banquet. To keep the costs down, you will serve only two main dishes. One will be a chicken dish that costs $5.00 each; the other will be a beef dish that costs $7.00 each. There will be 250 people at the banquet and the total cost of the food will be $1,500. Let x be the number of chicken dishes and y be the number of beef dishes. Find out how many of each type of dish will be served.

8. Clear Shine window cleaner is 12% alcohol and Sunstream window cleaner is 30% alcohol. How much of each should be used to make 90 oz. of a cleaner that is 20% alcohol?

9. An athlete is training for the triathlon and has discovered that her rates seem to be staying the same. On Monday she jogged for 30 minutes and rode the bike for 30 minutes and covered 21 miles. On Tuesday she rode the bike for one-half hour and swam for one hour and covered 18.4 miles. On Wednesday she jogged for 15 minutes and biked for 45 minutes and covered 25.5 miles. What was her rate for each sport?

10. The circuit below is represented by these three equations. Solve for the current in the circuit when:

$$I_1 - I_2 - I_3 = 0$$
$$3I_1 + 4I_2 = -2$$
$$-4I_2 + 3I_3 = 2$$