College Alg Chapter 7 Final Exam Review   Name:_____

1. Solve by Substitution

a) $\begin{cases} x = 3y - 7 \\ 4x + 3y = 2 \end{cases}$

b) $\begin{cases} y = 4x - 5 \\ 8x - 2y = 10 \end{cases}$

2. Solve by Elimination

a) $\begin{cases} 3x + 4y = -5 \\ 2x - 3y = 8 \end{cases}$

b) $\begin{cases} 2x + 5y = 3 \\ 3x - 2y = 1 \end{cases}$

3. Solve by the method of your choice:

a) $\begin{cases} y = 4x + 1 \\ 3x + 2y = 13 \end{cases}$

b) $\begin{cases} x + 4y = 14 \\ 2x - y = 1 \end{cases}$

c) $\begin{cases} 5x + 3y = 1 \\ 3x + 4y = -6 \end{cases}$

d) $\begin{cases} 2y - 6x = 7 \\ 3x - y = 9 \end{cases}$

e) $\begin{cases} 2x - y + 2z = -8 \\ x + 2y - 3z = 9 \\ 3x - y - 4z = 3 \end{cases}$

f) $\begin{cases} x - 3z = -5 \\ 2x - y + 2z = 16 \\ 7x - 3y - 5z = 19 \end{cases}$

g) $\begin{cases} 2x - y + z = 1 \\ 3x - 3y + 4z = 5 \\ 4x - 2y + 3z = 4 \end{cases}$

h) $\begin{cases} x + 2y - z = 5 \\ 2x - y + 3z = 0 \\ 2y + z = 1 \end{cases}$

4. Solve each problem:

a) Roses sell for $3 each and carnations for $1.50 each. If a mixed bouquet of 20 flowers consisting of roses and carnations costs $39, how many of each type of flower is in the bouquet?

b) A travel agent offers two package vacation plans. The first plan costs $360 and includes 3 days at a hotel and a rental car for 2 days. The second plan costs $500 and includes 4 days at a hotel and a rental car for 3 days. The daily charge for the hotel is the same under each plan, as is the daily charge for the car. Find the cost per day for the hotel and for the car.

c) A chemist needs to mix a solution that is 34% silver nitrate with one that is 4% silver nitrate to obtain 100 milliliters of a mixture that is 7% silver nitrate. How many milliliters of each of the solutions must be used?

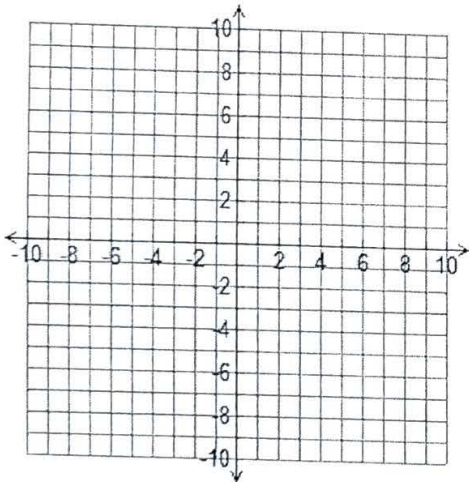5. Graph each inequality or system of inequalities.
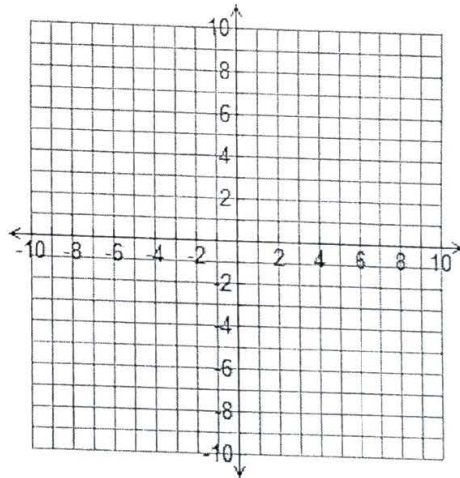
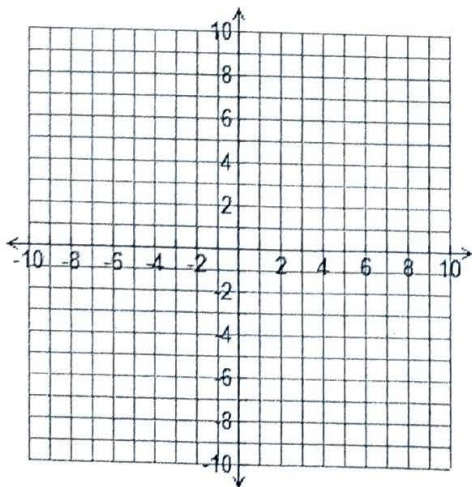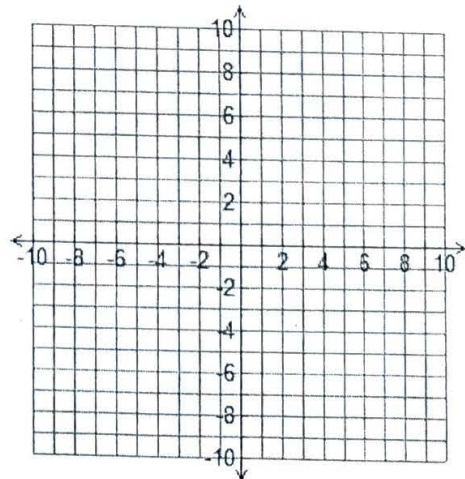a) $3x - 4y > 12$
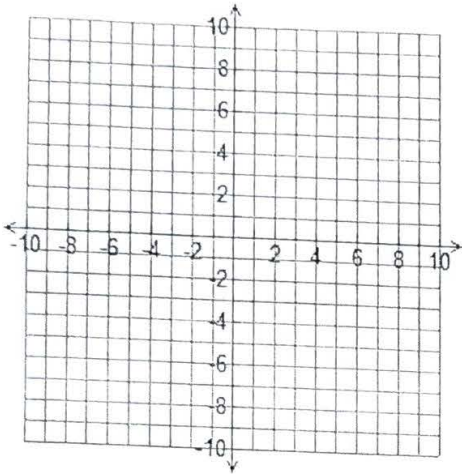
b) $y \le -\dfrac{1}{2}x + 2$
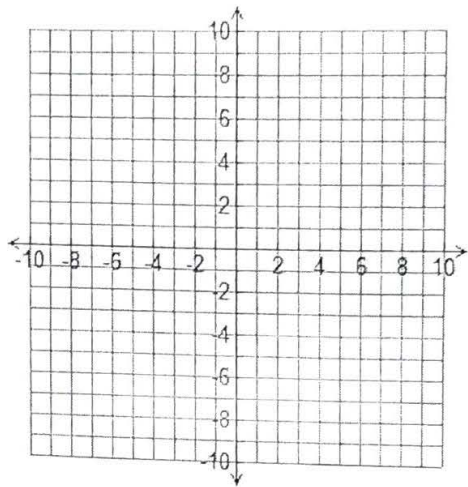
c) $x^2 + y^2 > 4$

d) $y \le x^2 - 1$
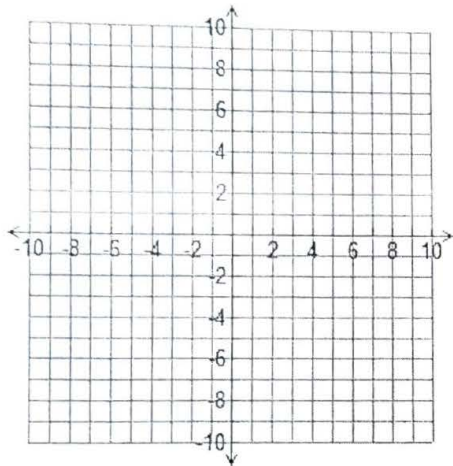
e) $\begin{cases} 2x - y \ge 4 \\ x + 2y < 2 \end{cases}$
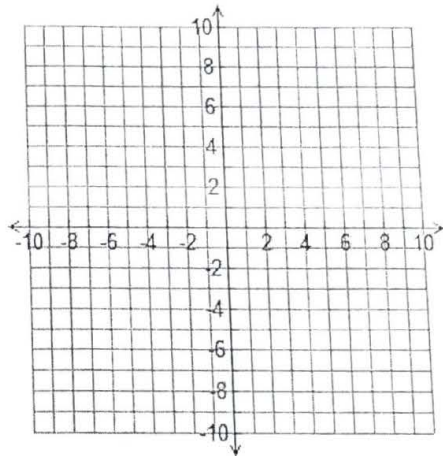
f) $\begin{cases} x + y \le 6 \\ y \ge 2x - 3 \end{cases}$
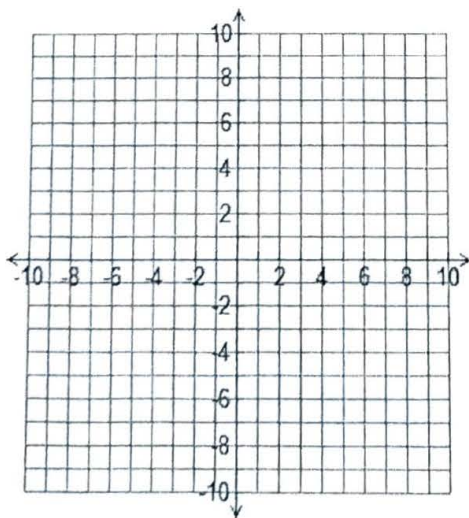
6. Graph each inequality or system of inequalities.

a) $\begin{cases} x^2 + y^2 \leq 16 \\ x + y < 2 \end{cases}$

b) $\begin{cases} x^2 + y^2 \leq 9 \\ y < -3x + 1 \end{cases}$

c) $\begin{cases} y \geq 0 \\ 3x + 2y \geq 4 \\ x - y \leq 3 \end{cases}$

d) $\begin{cases} y > x^2 \\ x + y < 6 \\ y < x + 6 \end{cases}$