Algebra 2
Chapter 3 Practice Test

Name_____
Date _____

Please solve the system of equations, using *substitution*.

1) $\begin{cases} -5x + y = -2 \\ -3x + 6y = -12 \end{cases}$

1)_____

Please solve the system of equations, using *elimination*.

2) $\begin{cases} -2x + 6y = 6 \\ -7x + 8y = -5 \end{cases}$

2)_____

Please solve the system of equations, using any method.

3) $\begin{cases} 2x + 8y = 6 \\ -5x - 20y = -15 \end{cases}$ 3)_____

4) $\begin{cases} -2x - y = -9 \\ 5x - 2y = 18 \end{cases}$ 4)_____

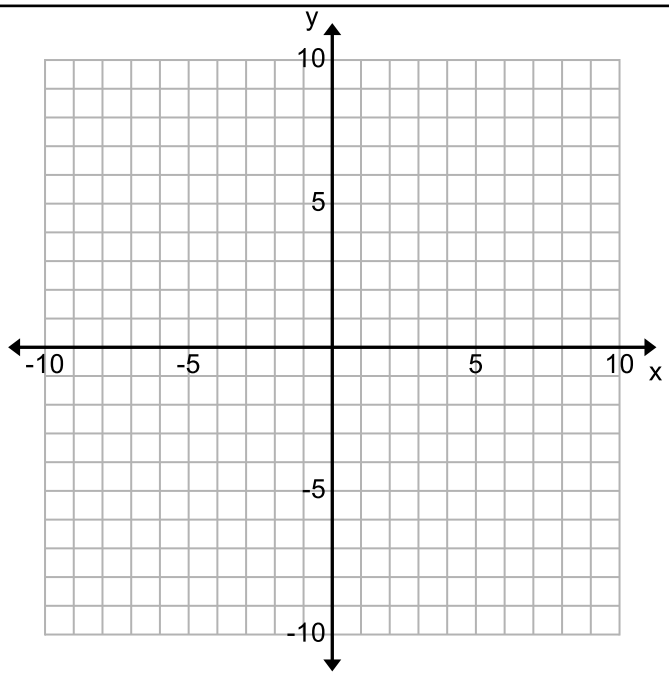
5) $\begin{cases} -14 = -20y - 7x \\ 10y + 4 = 2x \end{cases}$ 5)_____

6) $\begin{cases} -x-5y+z=17 \\ -5x-5y+5z=5 \\ 2x+5y-3z=-10 \end{cases}$

6)_____

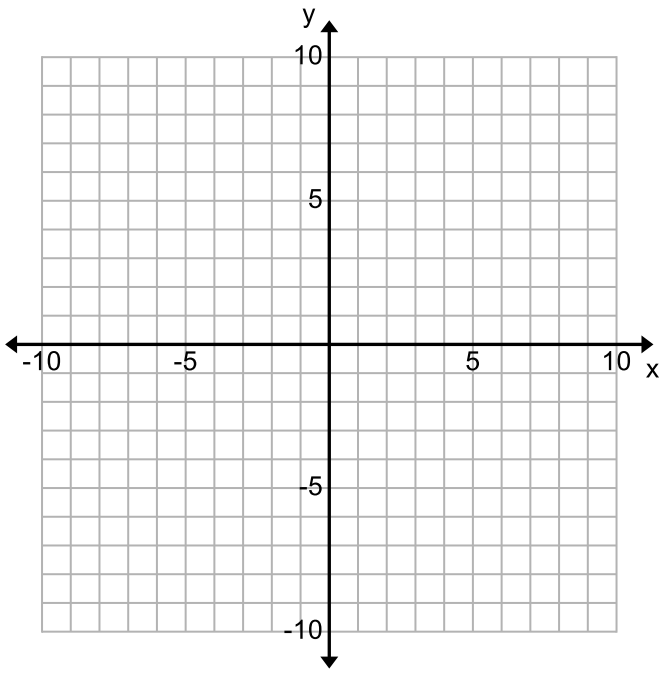
Please solve each system of inequalities by graphing.

7) $\begin{cases} x+y>2 \\ 2x-y\geq 1 \end{cases}$



Please label all intersection points clearly.

8) $\begin{cases} y \geq x - 3 \\ y \geq -x - 1 \\ y \leq 1 \end{cases}$



Using the intersection points for the problem above, please evaluate the *minimum* and *maximum* values for a cost function defined by **C = –x + 4y**.

9)

9) minimum: _____

maximum: _____

Please perform the following matrix operations, by hand.

10) $\begin{pmatrix} 1 & 3 \\ -7 & 2 \end{pmatrix} + 2\begin{pmatrix} 0 & -2 \\ -4 & 5 \end{pmatrix}$

11) $\begin{pmatrix} 1 & 3 \\ -7 & 2 \end{pmatrix}\begin{pmatrix} 0 & -2 \\ -4 & 5 \end{pmatrix}$

12) Please evaluate the determinant, by hand.

$$\begin{pmatrix} 1 & 2 \\ 4 & 6 \end{pmatrix}$$

13) Please evaluate the inverse, by hand.

$$\begin{pmatrix} 1 & 2 \\ 4 & 6 \end{pmatrix}$$

14) Please solve the same system of equations from #3, using Cramer's Rule.

(You may use technology, as long as you clearly state what steps you took, and write out each calculator result.)

$$\begin{cases} -7x + y = -19 \\ -2x + 3y = -19 \end{cases}$$

15) Please solve the same system of equations from #6, using an *inverse matrix*.

(You may use technology, as long as you clearly state what steps you took, and write out each calculator result.)

$$\begin{cases} -x - 5y + z = 17 \\ -5x - 5y + 5z = 5 \\ 2x + 5y - 3z = -10 \end{cases}$$