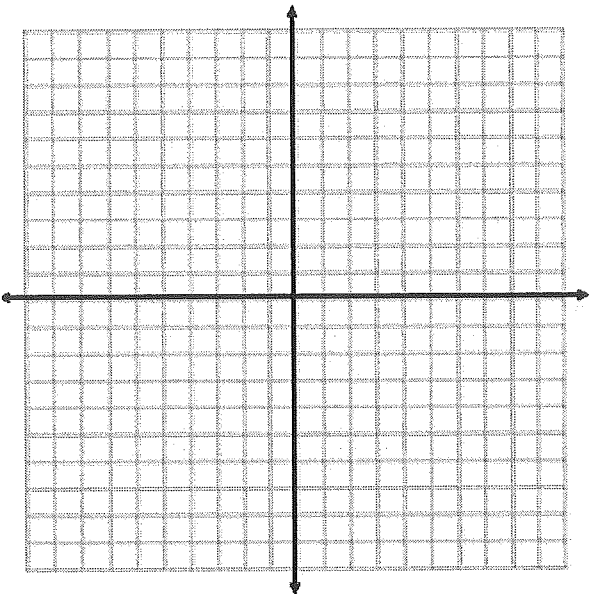


Unit 2 Summative Review

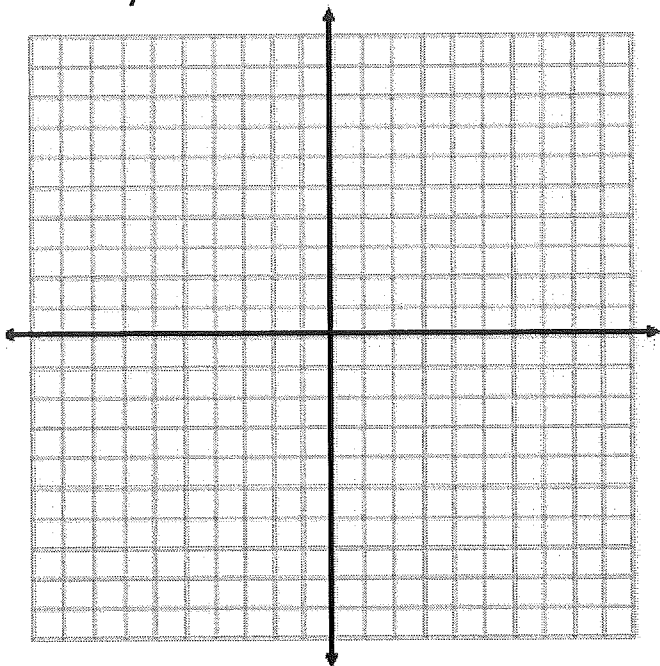
Name _____

Solve each system by graphing.

1. $y = 2x + 1$
 $y = 4x + 5$



2. $y = 3x - 5$
 $2y = 6x + 4$



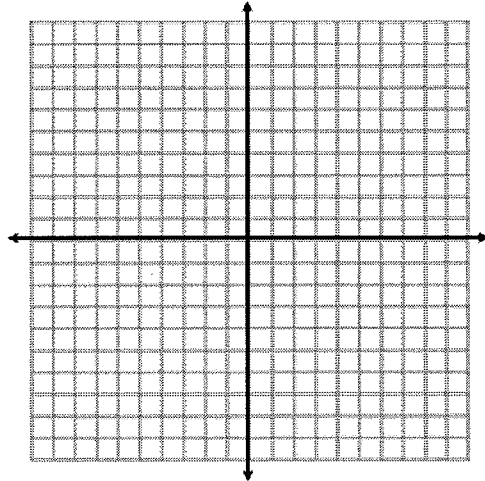
Solve each system by elimination.

3. $5x - 2y = -19$
 $2x + 3y = 0$

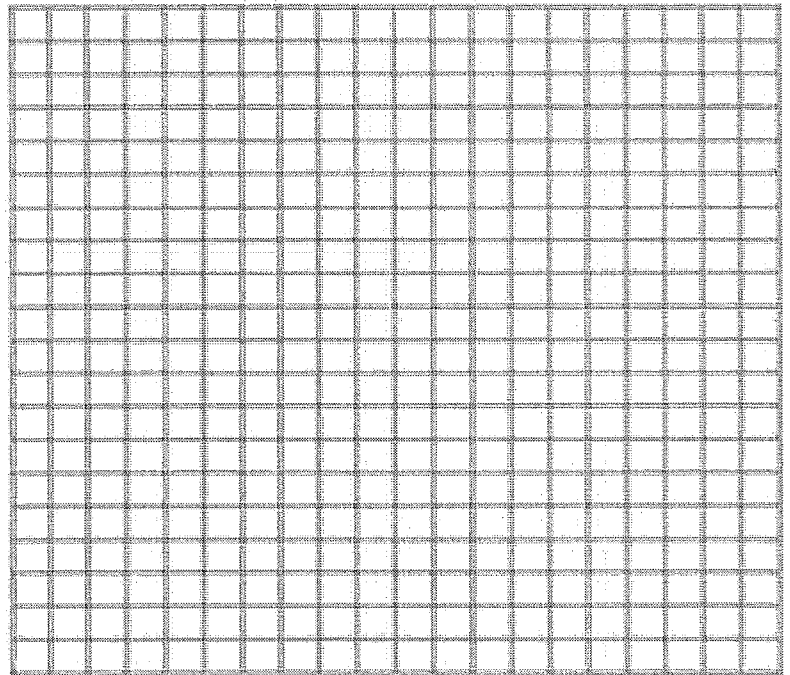
4. $x - y = -4$
 $2x + y = 13$

Solve each system of inequalities by graphing.

5. $3y + 9x < 3$
 $y > 2$



6. A designer of leather jackets, created two new jacket designs for the new season, a short one and a long one. Each short jacket requires 1 labor-hour from the cutting department and 3 labor-hours from the sewing department. Each long leather jacket requires 2 labor-hours from the cutting department and 4 labor-hours from the sewing department. This designer is sharing cutting and sewing services with other designers, and as such, there are only 32 labor-hours per week available in the cutting department and 84 labor-hours per week available in the sewing department from him. In addition, the distributor cannot take any more than 12 long leather jackets per week. If the designer makes \$50 profit on each short jacket and \$80 on each long one, how many jacket of each type should he have manufactured per week in order maximize profit?



Solve.

$$\begin{aligned} 7. \quad & 2x + y + z = -2 \\ & 2x - y + 3z = 6 \\ & 3x - 5y + 4z = 7 \end{aligned}$$

$$\begin{aligned} 8. \quad & 2x - 4y + z = 10 \\ & x + 2y - z = 1 \\ & -x - 3y + 2z = 0 \end{aligned}$$

9. Some students want to order shirts with their school logo. One company charges \$9.65 per shirt plus a setup fee of \$43. Another company charges \$8.40 per shirt plus a \$58 fee. For what number of shirts would the cost be the same?

10. Write the standard form of the equation that passes through (5, 0) and is parallel to $3x - 2y = 1$

11. Write the standard form of the equation that is perpendicular to the line $7x - 4y = 28$ and passes through (0, -7)

12. Describe the transformation from the parent function:

$$y = (x+4)^2 + 5$$

$$y = -2(x + 3)^2 + 3$$

13. Find the value of each variable.

$$\begin{bmatrix} x - 2 & 7y \\ 9 & -3 \end{bmatrix} = \begin{bmatrix} 10 & -21 \\ 3z & 1 - w \end{bmatrix}$$

14. Solve each matrix equation.

$$X - 3 \begin{bmatrix} -3 & -3 \\ 2 & 0 \end{bmatrix} = \begin{bmatrix} 4 & 0 \\ 12 & -10 \end{bmatrix}$$

$$\begin{bmatrix} 8 & 6 & 14 \\ 4 & -2 & 10 \end{bmatrix} - 2X = \begin{bmatrix} 10 & 8 & 10 \\ 6 & -4 & 20 \end{bmatrix}$$

Matrices Review for Unit 2 Test

Name: _____

Use the following matrices. Show all work.

$$A = \begin{bmatrix} 6 & 2 \\ -1 & 5 \end{bmatrix}$$

$$B = \begin{bmatrix} 4 & 0 \\ 7 & 5 \end{bmatrix}$$

$$C = \begin{bmatrix} 3 & -1 \\ 11 & -3 \end{bmatrix}$$

$$D = \begin{bmatrix} 3 & 0 \\ 1 & -2 \end{bmatrix}$$

$$E = \begin{bmatrix} 14 & 2 \\ 4 & .5 \end{bmatrix}$$

$$F = \begin{bmatrix} .25 & -.25 \\ 16 & 8 \end{bmatrix}$$

$$G = \begin{bmatrix} -5.7 & 1.6 \\ 3.2 & 2 \end{bmatrix}$$

$$H = \begin{bmatrix} 0 & 1 & 2 \\ -1 & 3 & 2 \\ 2 & 8 & 3 \end{bmatrix}$$

$$I = \begin{bmatrix} 10 & 0 & 11 \\ -2 & 3 & -1 \\ 5 & -25 & 4 \end{bmatrix}$$

$$J = \begin{bmatrix} -7 & 1 & 9 \\ 3 & 0 & 1 \end{bmatrix}$$

I. Determine the order (dimensions) of each matrix.

A _____, B _____, C _____, D _____, E _____, F _____, G _____, H _____, I _____, J _____

II. Find the determinant.

1. $\det A =$ _____

2. $|B| =$ _____

III. Find the inverse.

1. $[A]^{-1} =$

2. $[B]^{-1} =$

IV. Determine if the following matrices have an inverse. If yes, find the inverse.

1. $A = \begin{bmatrix} 3 & 4 \\ 2 & -5 \end{bmatrix}$

2. $B = \begin{bmatrix} 4 & 10 \\ 2 & 5 \end{bmatrix}$

V. Perform the operation.

1. $A + G$

2. $H - I$

3. $2C + I$

4. $D - H$

5. $A + D$

6. $E - F$

7. $-2C$

8. $2A + 3D$

9. $3C - 2A$

10. AB

11. EJ

12. DE

VI. Solve each matrix equation.

1.
$$\begin{bmatrix} -1 & 5 \\ -1 & 7 \end{bmatrix} + X = \begin{bmatrix} -2 & 6 \\ -5 & 4 \end{bmatrix}$$

3.
$$Y - \begin{bmatrix} -2 & -1 \\ 7 & -4 \end{bmatrix} = \begin{bmatrix} 7 & -1 \\ 6 & -8 \end{bmatrix}$$

2.
$$\begin{bmatrix} 3 & 9 \\ 3 & 11 \end{bmatrix} X = \begin{bmatrix} -18 \\ -22 \end{bmatrix}$$

4.
$$\begin{bmatrix} 6 & -8 \\ 1 & 7 \end{bmatrix} + \begin{bmatrix} 5 & -1 \\ -8 & 0 \end{bmatrix} Z = \begin{bmatrix} -1 & 18 \\ 25 & -33 \end{bmatrix}$$