1. Solve the System

$$5x + y = 1$$
$$x + y = -2$$

by writing down the steps you would use using the calculators row operations or by using the elimination method.

2. Solve the system

$$\begin{bmatrix} 1 & 0 & 0 & \frac{27}{4} \\ -4 & 1 & 0 & -21 \\ 0 & -2 & 0 & -12 \end{bmatrix}$$

Give the ordered triple that would indicate the infinite number of solutions, the exact answer, or if there is no solution.

3. Solve the system

$$-3x + 7y = 2$$
$$-2x + 9y = 4$$

by writing down how you would use a graphing calculator to solve it

4. Solve the system

$$\begin{bmatrix} 1 & 0 & -4 & -6 \\ \frac{19}{4} & 1 & -17 & -\frac{43}{2} \\ 3 & 0 & -12 & -18 \end{bmatrix}$$

using Gauss Jordan elimination and a Calculator.

5. For $A = \begin{bmatrix} -7 & 3 \\ 0 & -2 \end{bmatrix}$ $B = \begin{bmatrix} 7 & -7 \\ 6 & -1 \end{bmatrix}$

Find $A + B$

6. For $C = \begin{bmatrix} 4 & 7 \\ 7 & 6 \\ 1 & -5 \end{bmatrix}$ $D = \begin{bmatrix} -5 & 7 \\ 4 & -7 \\ 0 & 5 \end{bmatrix}$

Find $C - D$

7. For $E = \begin{bmatrix} -3 & 5 & 4 \\ 7 & 7 & 6 \end{bmatrix}$ $F = \begin{bmatrix} 7 & 6 & 1 \\ -7 & 2 & 3 \end{bmatrix}$

Find $4E - 6F$

8. $\begin{bmatrix} -4 & 5 \\ 2 & -6 \end{bmatrix} \begin{bmatrix} x & 6 \\ y & 5 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ -2 & -18 \end{bmatrix}$

Find the Value of x and y

9. If $M = \begin{bmatrix} 4 & 7 & -7 \\ 6 & 2 & -5 \end{bmatrix}$ $N = \begin{bmatrix} 0 & 7 \\ 3 & -4 \\ 7 & 6 \end{bmatrix}$

Find $M \cdot N$

10 Evaluate $\begin{vmatrix} 4 & 3 & 0 \\ 3 & -1 & 3 \\ -3 & 3 & 4 \end{vmatrix}$

11 Find the Inverse of

$$A = \begin{bmatrix} -3 & 4 \\ 4 & -6 \end{bmatrix}$$

by hand, showing each step of your solution.

12. Solve the System

$$\begin{aligned} -2x + y - 3z &= -3 \\ 3x - y + \tfrac{7}{2}z &= -1 \\ x - y + 2z &= 3 \end{aligned}$$

using an inverse matrix. Show in your answer the inverse matrix element values and the values of x, y, and z

13. Find the inverse of K if it exists.

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

Math 1050 College Algebra

Chapter Seven Exam

Conic Sections

Name _____

Match the conic sections on the left with their respective terms on the right. Some terms may have more than one conic section matched with it.

1.

A. Circle

B. Ellipse

C. Hyperbola

D. Parabola

_____ _____ _____ _____ Major axis

_____ _____ _____ _____ Transverse axis

_____ _____ _____ _____ h

_____ _____ _____ _____ Center

_____ _____ _____ _____ Directrix

_____ _____ _____ _____ Asymptote

_____ _____ _____ _____ Radius

_____ _____ _____ _____ General Equation

_____ _____ _____ _____ r

_____ _____ _____ _____ Vertex or vertices

_____ _____ _____ _____ Minor axis

_____ _____ _____ _____ c

_____ _____ _____ _____ Conjugate axis

_____ _____ _____ _____ p

_____ _____ _____ _____ Axis of symmetry

_____ _____ _____ _____ a

_____ _____ _____ _____ Focus or foci

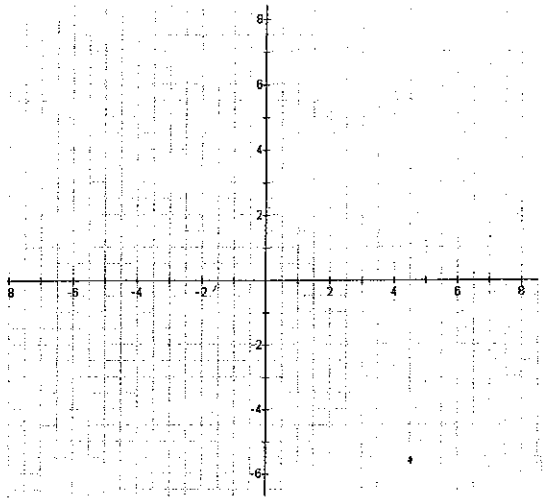
_____ _____ _____ _____ b

_____ _____ _____ _____ k

Graph the following conic sections:

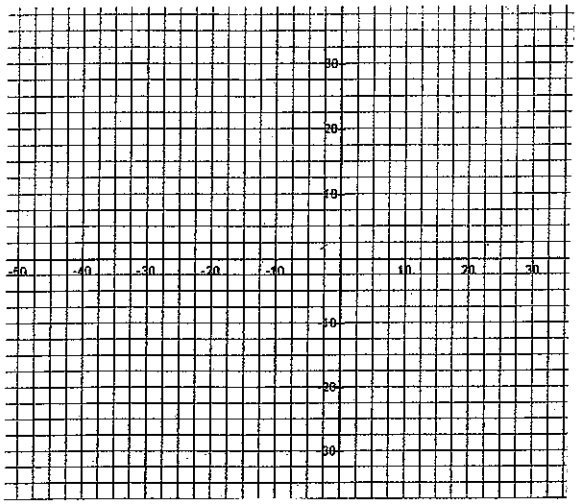
2. $3y^2 - 24y + 12x - 12 = 0$

Which conic section is this? _____
Where is (h, k)? _____
What is r? _____
What is a? _____
What is b? _____
What is c? _____
What are the coordinates of the foci? _____
What are equations of asymptotes? _____



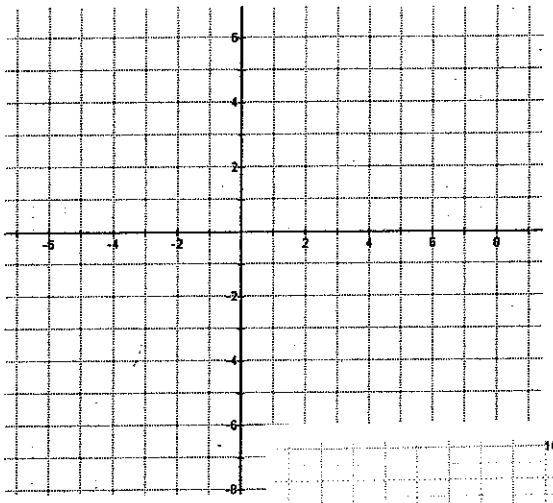
3. $4x^2 + 25y^2 + 196x - 40y + 100 = 0$

Which conic section is this? _____
Where is (h, k)? _____
What is r? _____
What is a? _____
What is b? _____
What is c? _____
What are the coordinates of the foci? _____
What are equations of asymptotes? _____



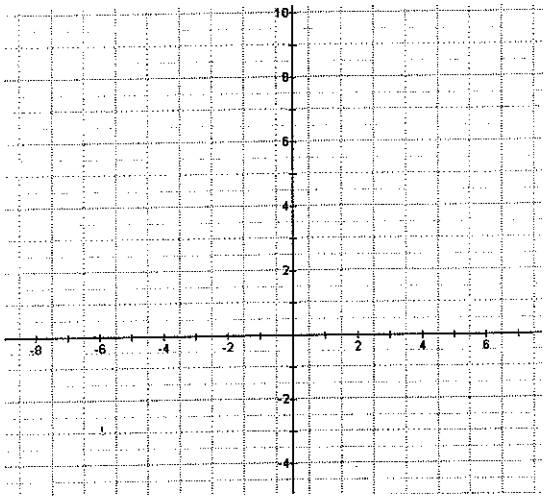
4. $5x^2 + 5y^2 - 30x + 30y - 35 = 0$

Which conic section is this? _____
Where is (h, k)? _____
What is r? _____
What is a? _____
What is b? _____
What is c? _____
What are the coordinates of the foci? _____
What are equations of asymptotes? _____



5. $9x^2 - 4y^2 - 18x + 24y + 9 = 0$

Which conic section is this? _____
Where is (h, k)? _____
What is r? _____
What is a? _____
What is b? _____
What is c? _____
What are the coordinates of the foci? _____
What are equations of asymptotes? _____



Find the equation of each of the following conic sections from the given information.

6. The focus is at (0, 2) and the directrix is $y = -2$

7. The diameter has endpoint (4, 9) and (-2, 1)

8. The vertices are at $(\pm 15, 0)$ and the foci are at $(\pm 17, 0)$

9. The vertices are at $(0, \pm 8)$ and the foci are at $(0, \pm 5)$