

MATH 116
QUIZ 4

Name _____

Show all work for each question, full credit will be given only if all work is shown. Each question is equal in value. Clearly indicate your answers. Good luck!

1. Find the number of points of intersection of the graphs by looking at the graph.

$$x^2 + y^2 = 2$$

$$2x + y = 1$$

- a. 4 b. 3 c. 2 d. 1 e. 0

2. Solve the system of equations by the substitution method. Show all work.

$$y = \frac{1}{x}$$

$$x + 5y = 6$$

3. Solve the system of equations by the elimination method. Show all work.

$$2x - 5y = -4$$

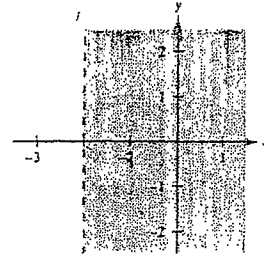
$$4x + 3y = 5$$

4. Solve the system of equations using any method. Show all work.

$$x + y = 4$$

$$x^2 - y = 2$$

7. Match the graph with the correct inequality:

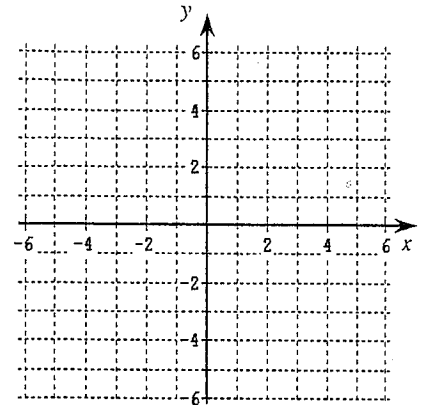


- a. $y > -2$ b. $y < -2$ c. $x > -2$ d. $x < -2$ e. none of these

8. Sketch the system of inequalities:

$$2x + 3y \leq 6$$

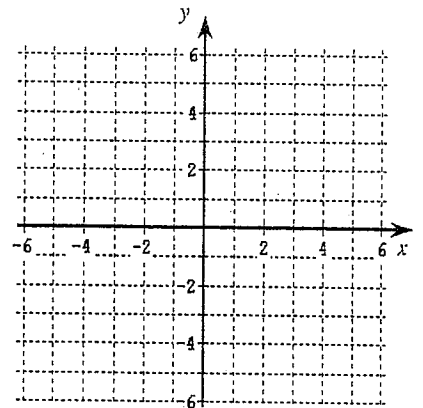
$$x - 2y > -2$$



9. Sketch the system of inequalities:

$$x^2 + y^2 \leq 9$$

$$2x + y > 1$$



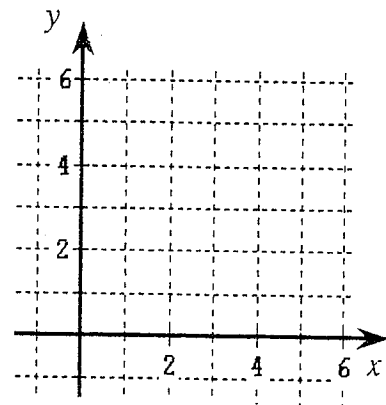
10. Determine the **critical values** for the given constraints:

$$x \geq 0$$

$$y \geq 0$$

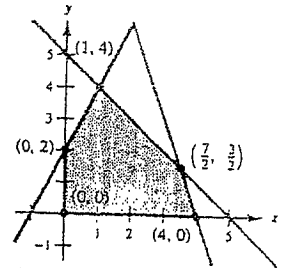
$$3x + 4y \leq 24$$

$$3x - y \leq 4$$



Critical values: _____

11. Find the **maximum value** of the objective function $z = 10x + 8y$ subject to the constraints shown below.



Maximum value is _____ and occurs at point _____

12. A company produces two models of calculators at two different plants. In one day Plant A can produce 60 of model I and 70 of model II. In one day, Plant B can produce 80 of model I and 40 of model II. Assume it costs \$1200 per day to operate Plant A and \$900 per day for Plant B. Write the **objective function and the constraints**. DO NOT SOLVE.

Objective function: _____

Constraints: _____
