Algebra II Test Chapter 12 Name _____

I. Definitions

1. Write out the definition of an hyperbola.

2. Write out the definition of a parabola.

3. Write the general equation for a circle with center at (h, k) and radius r.

II. Multiple Choice

_____ 4. Which is the center of the circle $x^2 + y^2 + 4x - 8y + 10 = 0$?

A (-2, 4) B (2, 4) C (4, 2) D (4, -2)

_____ 5. Which are the solutions of the system?

$$\begin{cases} 2x^2 + 3y^2 = 23 \\ 3x^2 - y^2 = 7 \end{cases}$$

I. $\left(2, \pm\sqrt{5}\right)$ II. $\left(-2, \sqrt{5}\right)$ III. $\left(-2, -\sqrt{5}\right)$

A. I and II only B. III only C. I and III only D. I, II, and III

_____ 6. Which are the foci of the hyperbola $16x^2 - 9y^2 = 144$?

A. $(\pm 5, 0)$ B. $(0, \pm 5)$ C. $(\pm 3, 0)$ D. $(0, \pm 3)$

_____ 7. Identify the conic section represented by the equation $x^2 + 6x + 4y^2 = 9$

A. Parabola B. Circle C. Ellipse D. Hyperbola

_____ 8. Identify the conic section represented by the equation $x^2 - 6x - 4y^2 + 12y = 9$

A. Parabola B. Circle C. Ellipse D. Hyperbola

_____ 9. Identify the conic section represented by the equation $x^2 + 6x + y^2 - 18y = 9$

A. Parabola B. Circle C. Ellipse D. Hyperbola

_____ 10. Identify the conic section represented by the equation $x^2 + 6x - 4y = 9$

A. Parabola B. Circle C. Ellipse D. Hyperbola

III. Short Answer

_____ 11. Choose ***one*** of the following:

A) The center of a circle is (-8, 2), and one endpoint of a diameter is (14, 8). Determine the other endpoint.

B) Determine ***k*** if the distance between (12, -1) and (***k***, -4) is $\sqrt{234}$.

_____ 12. Determine the equation of a circle with center (4, -1) and radius 7.

_____ 13. Determine the equation of a parabola with focus (-3, -3) and vertex (-3, -1).

_____ 14. Determine the equation of an ellipse with center (4, -1), major axis = 10, and one focus (4, 0).

_____ 15. Solve the system:

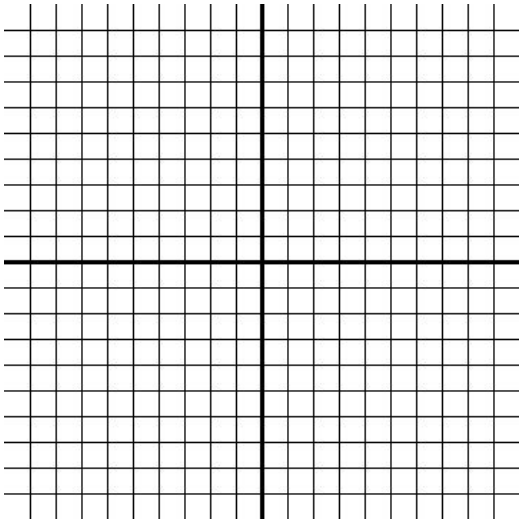
$$\begin{cases} x^2 + y^2 = 25 \\ y - 2x - 5 = 0 \end{cases}$$

_____ 16. Solve the system:

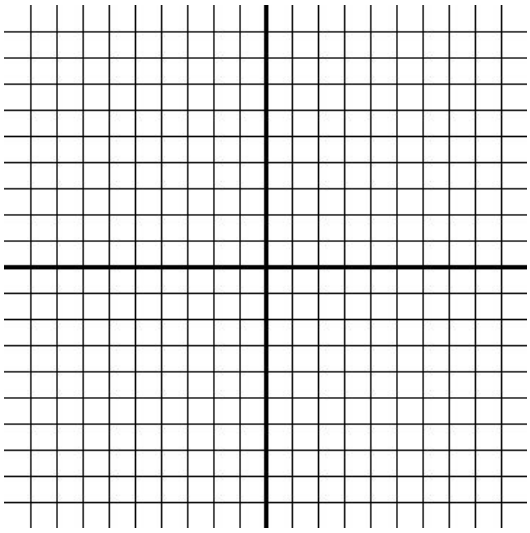
$$\begin{cases} x^2 - y^2 = 9 \\ x^2 + 9y^2 = 169 \end{cases}$$

IV. Sketch each of the following on the axes provided:

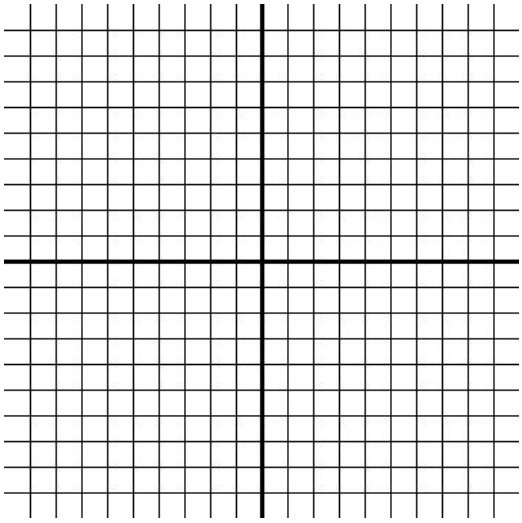
17. $(y+2)^2 = 4x$



18. $16(x-2)^2 + 9y^2 = 144$



19. $x^2 - 12y + 60 = 0$



20. $3x^2 - 12x - 2y^2 - 8y = 8$