Algebra II Test Sections 12.1 – 12.5 Name _____

I. Definitions

1. Write out the definition of a ellipse.

2. Write out the definition of a circle.

3. Write the general equation for an hyperbola with center (h, k) and foci (c, 0) and (-c, 0).

II. Matching (Answers may be used more than once)

_____ 4. $x^2 + y^2 = 9$ A. Line

_____ 5. $\frac{x^2}{9} + \frac{y^2}{16} = 1$ B. Hyperbola

_____ 6. $\frac{x^2}{9} - \frac{y^2}{16} = 1$ C. Ellipse

_____ 7. $x + y = 9$ D. Circle

III. Short Answer

_____ 8. Determine the length of the segment joining (-2, 3) and (2, 9).

_____ 9. Determine the equation of the circle with center (-4, 1) and radius 4.

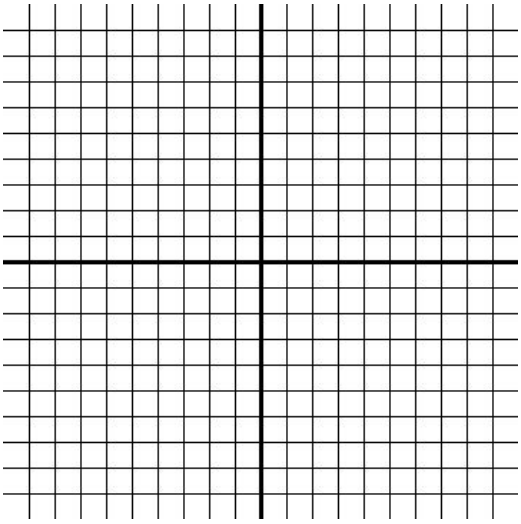
_____ 10. Determine the coordinates of the midpoint of the segment joining the points (-7, 5) and (-1, -11).

_____ 11. Determine the equation of an ellipse with vertices (2, 9), (2, -1), (5, 4), and (-1, 4).

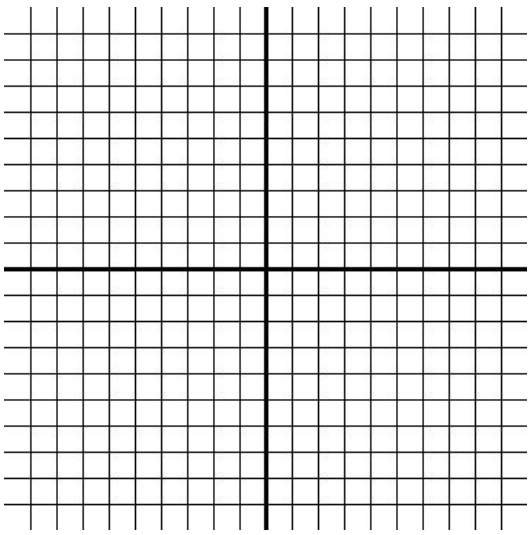
_____ 12. Determine the equation of an hyperbola whose vertices are $\left(0, 2\sqrt{5}\right)$ and $\left(0, -2\sqrt{5}\right)$, and whose foci are $\left(0, -3\sqrt{5}\right)$ and $\left(0, 3\sqrt{5}\right)$.

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

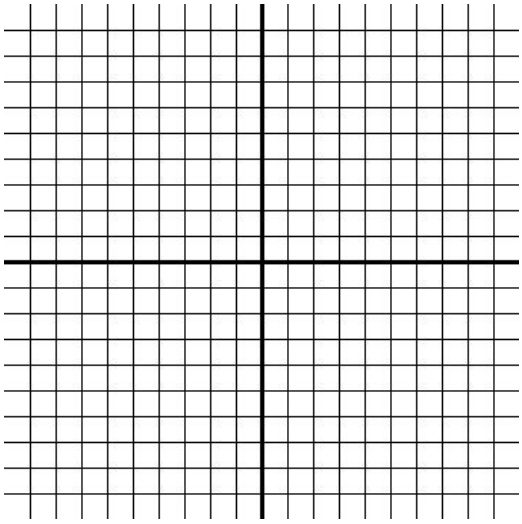
13. $\left(x+2\right)^2+\left(y-4\right)^2=25$



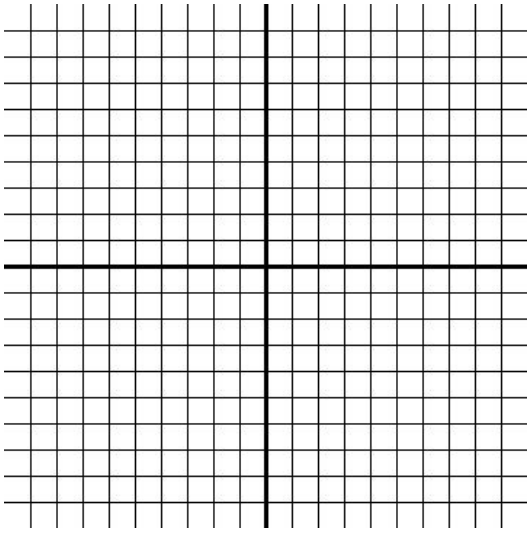
14. $9\left(x-2\right)^2+25y^2=144$



15. $\frac{x^2}{16} - \frac{y^2}{25} = 1$



16. $x^2 - 2x + y^2 - 6y = -1$



V. Short Answer

17-20. Given the equation of the ellipse $x^2 + 9y^2 + 4x - 54y + 49 = 0$

Determine the following:

_____ 17. Coordinates of the Center

_____ 18. Coordinates of the Foci

_____ 19. Eccentricity

_____ 20. The equation of the ellipse in standard form