AOS Math 10 Conic Sections Test

Name and section: _____

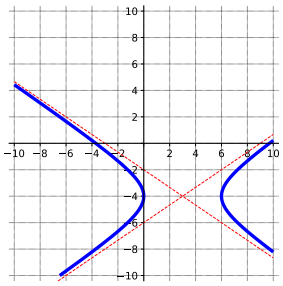
Instructor's name: _____

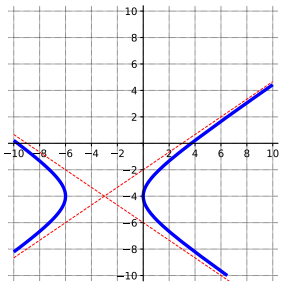
True / False

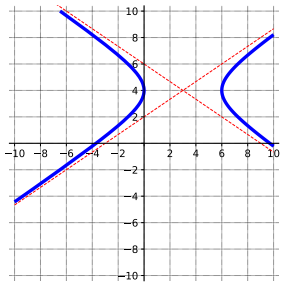
1. _____ The major axis of a (non-circular) ellipse is always longer than the minor axis.
2. _____ The transverse axis of a hyperbola is always longer than the conjugate axis.
3. _____ The foci of an ellipse are on the minor axis.
4. _____ The focus of the parabola $x^2 = 8y$ is the lowest point on the parabola.
5. _____ The graph of $\frac{x^2}{16} + \frac{y^2}{25} = 1$ fits entirely inside the graph of $x^2 + y^2 = 30$
6. _____ The directrix of a parabola is perpendicular to the axis of symmetry.
7. _____ The distance between two foci of an ellipse or a hyperbola is $2c$.
8. _____ The eccentricity of an ellipse can be $e = 1.14$.
9. _____ A circle is just an ellipse with $a = b$.
10. _____ The graphs of $\frac{x^2}{2} - \frac{y^2}{3} = 1$ and $\frac{y^2}{2} - \frac{x^2}{3} = 1$ have the same asymptotes.

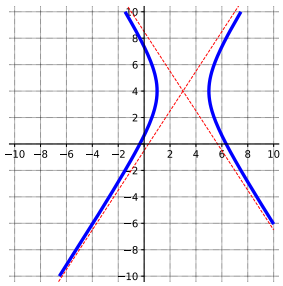
Multiple Choice

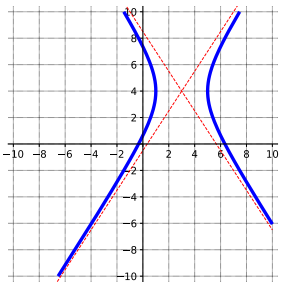
1. Which is the graph of $\frac{(x-3)^2}{9} - \frac{(y+4)^2}{4}$?

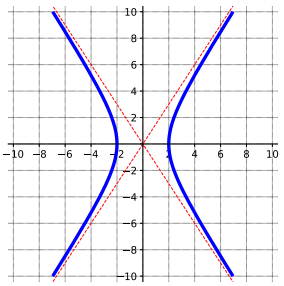
A. 

B. 

C. 

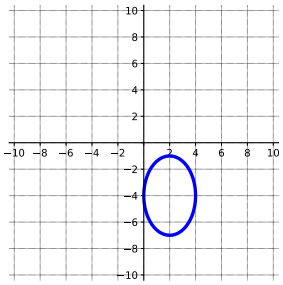
D. 

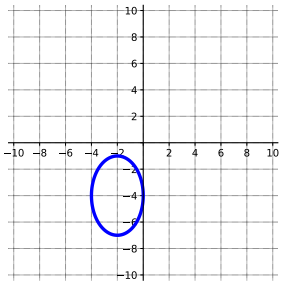
E. 

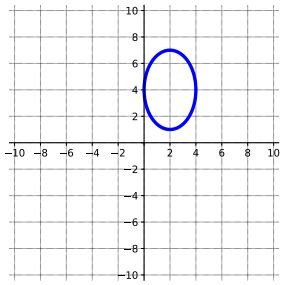
F. 

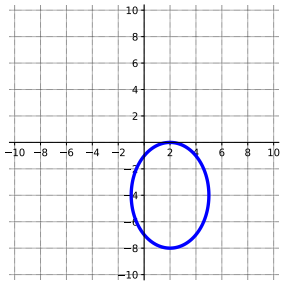
1. _____

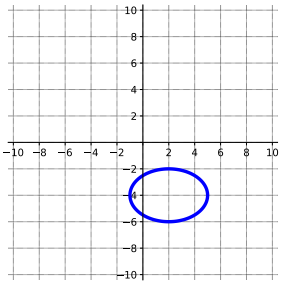
2. Which is the graph of $\frac{(x-2)^2}{4} + \frac{(y+4)^2}{9}$?

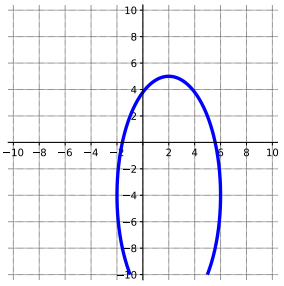
A. 

B. 

C. 

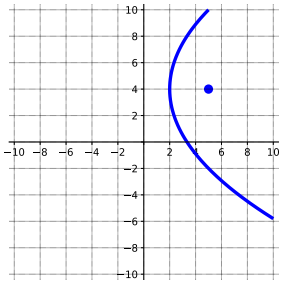
D. 

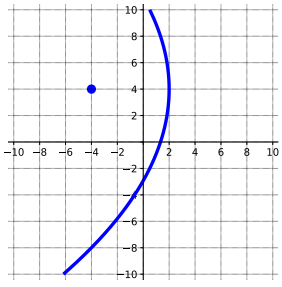
E. 

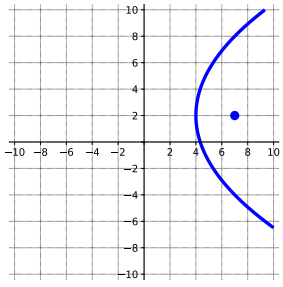
F. 

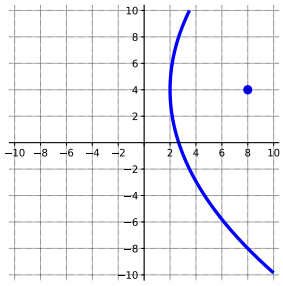
2. _____

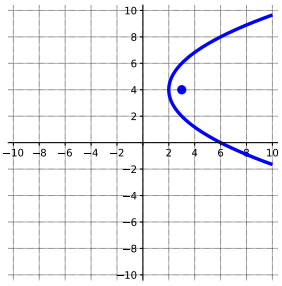
3. Which is the graph of $(y-4)^2 = 12(x-2)$?

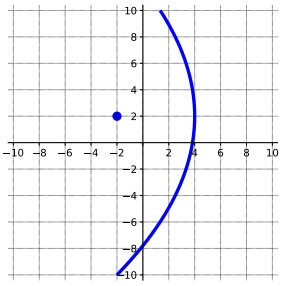
A. 

B. 

C. 

D. 

E. 

F. 

3. _____

4. What are the foci of the hyperbola $\frac{x^2}{16} - \frac{y^2}{12} = 1$?

A. $(\pm 2\sqrt{7}, 0)$ B. $(\pm 2, 0)$ C. $(0, \pm 2)$ D. $(0, \pm 2\sqrt{7})$

4. _____

5. What are the vertices of the ellipse $\frac{x^2}{9} + \frac{(y-2)^2}{7}$

A. $(\pm 3, 0)$ B. $(0, \pm 3)$ C. $(2 \pm \sqrt{7}, 0)$ D. $(0, 2 \pm \sqrt{7})$

5. _____

6. What is the equation of a hyperbola with vertices at $(3, -2)$ and $(-9, -2)$ and foci at $(7, -2)$ and $(-13, -2)$?

A. $\frac{(x+3)^2}{100} - \frac{(y+2)^2}{36}$ B. $\frac{(x+3)^2}{64} - \frac{(y-2)^2}{100}$ C. $\frac{(x-3)^2}{100} - \frac{(y+2)^2}{36}$ D. $\frac{(x-3)^2}{36} - \frac{(y+2)^2}{64}$

6. _____

7. What is the equation of a parabola where the vertex is $(3, -2)$ that passes through the point $(0, 1)$ and has a horizontal axis of symmetry?

A. $(x-3)^2 = \frac{4}{3}(y+2)$ B. $(x-3)^2 = \frac{4}{9}(y+2)$ C. $(x-3)^2 = 4(y+2)$ D. $(x-3)^2 = 12(y-2)$
E. $(x+3)^2 = 12(y+2)$

7. _____

8. Write the following conic in standard form: $4x^2 - y^2 - 24x - 4y + 16 = 0$

A. x B. x C. x D. x

8. _____

9. Write the equation of the ellipse that has a major axis 28 units long and is parallel to the y axis, a minor axis 26 units long, and a center at $(11, 8)$.

A. x B. x C. x D. x

9. _____

10. Given the equation of a circle in standard form: $(x+3)^2 + (y-4)^2 = 49$. Write the equation in general form.

A. x B. x C. x D. x

10. _____