Name _____

Topic 9 Conic Sections **Review**

1. Using the parabola represented by $x = \frac{1}{20}(y-1)^2 + 3$, find the

Focus:

Vertex:

Directrix:

Focal length:

2. The cross-section of a telescope's lens is a parabola modeled by the equation $y = \frac{1}{24}x^2$, with x and y measured in inches. A mirror is located at the focus of the parabola. How many inches from the vertex of the lens is the mirror?

3. Complete the square to find the vertex form of $-x + y^2 - 10y + 26 = 0$. Identify the vertex, focus, and directrix of the parabola.

vertex: _____

focus: _____

directrix: _____

4. What is an equation for the parabola with focus (0, −10) and directrix $y = 10$?

5. What is an equation for the parabola with vertex (0, 0) and directrix $x = 4$?

6. What is an equation for the circle with radius 4 and center (0, 0)?

7. What is the equation in standard form for the circle with radius 2 and center (−9, −1)?

8. What are the center and radius of the circle with the equation $x^2 + y^2 + 6x - 20y + 60 = 0$?

center: _____ radius: _____

9. Solve the system of equations.
$x^2 + y^2 = 160$
$y - 3x = 0$

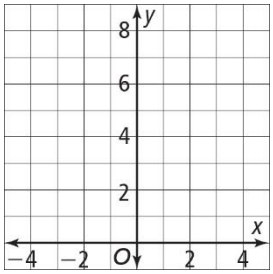
10. Find the features of the ellipse represented by the equation $\frac{(x+6)^2}{36}+\frac{(y+8)^2}{4}=1$.

Center:
Vertices: Co-vertices:

The horizontal axis is _____ units and the vertical axis is _____ units long.

11. What is an equation for the ellipse with foci (0, −5) and (0, 5) and vertices (0, −9) and (0, 9)?

12. Graph the ellipse represented by $\frac{(x+1)^2}{16}+\frac{(y-6)^2}{4}=1$.



13. Identify the center, foci, and vertices of the ellipse represented by $25x^2 - 100x + y^2 - 2y + 76 = 0$.

Center: Foci: Vertices:

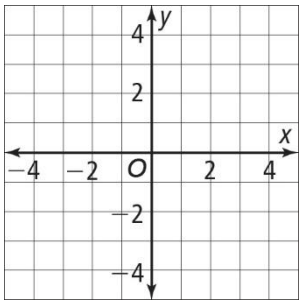
14. Find the vertices, foci, and asymptotes for the hyperbola $\frac{y^2}{81}-\frac{x^2}{40}=1$.

Vertices: Foci:
Asymptotes: Is the hyperbola horizontal or vertical?

15. What are the asymptotes of the hyperbola with vertices (±3, 0) and foci (±6, 0)?

16. Write an equation for the hyperbola with foci (9, 0) and (−9, 0) and constant difference of 14.

17. Graph $\frac{x^2}{9} - \frac{y^2}{16} = 1$.



18. What is the value of A which makes the equation $Ax^2 – 4x + 4y^2 + 7y – 100 = 0$ represent an ellipse?

19/20. Determine which conic section each equation represents.

$-9x^2 - 3y^2 + 18 = 0$

$4x^2 + 4x + 4y^2 – 1 = 0$

$-2x^2 + 12y^2 + 1 = 0$

$6x – 5y^2 - 2y + 9 = 0$

$5x^2 - 9y^2 + 3 = 0$

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