

**Algebra II - Chapter 10 Test Review***Please do all work on a separate paper.***REVIEWS ARE REQUIRED FOR RETEST ELIGIBILITY. NO LATE REVIEWS ACCEPTED**

1. Simplify  $\sqrt[3]{24a^7b^{12}}$ . Assume that all variables are positive.

2. 
$$\frac{a^2 - 2a - 35}{a^2 + 12a + 35}$$

3. 
$$\frac{d^2 + 10d + 24}{d^2 + d - 12} + \frac{10}{d - 3}$$

4.  $3\log_8 v + 6\log_8 x$

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**#5 – 7. Graph the conic section.**

5.  $(x - 6)^2 + (y + 3)^2 = 49$

6.  $x - 5 = \frac{1}{8}(y + 3)^2$ .

7.  $y + 4 = \frac{1}{24}(x + 2)^2$ .

8. Write an equation for a graph that is the set of all points in the plane that are equidistant from the point  $F(-2, 0)$  and the line  $x = 2$ .
9. Write an equation for a graph that is the set of all points in the plane that are equidistant from the point  $F(0, 9)$  and the line  $y = -9$ .
10. Write an equation of a parabola with a vertex at the origin and a focus at  $(0, 7)$ .
11. Write an equation of a parabola with a vertex at the origin and a focus at  $(-5, 0)$ .
12. Identify the vertex, focus, and directrix of the graph of  $y = \frac{1}{8}(x + 3)^2 + 4$ .
13. Identify the vertex, focus, and directrix of the graph of  $x = \frac{1}{20}(y - 5)^2 + 2$ .
14. Write an equation of a circle with center  $(3, 3)$  and radius 5.
15. Write an equation for the translation of  $x^2 + y^2 = 25$ , 4 units right and 6 units up.
16. Write an equation for the translation of  $x^2 + y^2 = 9$ , 7 units left and 2 units down.
17. Find the center and radius of the circle with equation  $(x + 8)^2 + (y - 6)^2 = 36$ .
18. Find the center and radius of the circle with equation  $(x - 2)^2 + (y + 7)^2 = 25$ .
19. Write an equation in standard form of an ellipse that has a vertex at  $(-3, 0)$ , a co-vertex at  $(0, -2)$ , and is centered at the origin.
20. Write an equation of the ellipse with foci at  $(0, \pm 5)$  and vertices at  $(0, \pm 9)$ .
21. Write an equation of the ellipse with foci at  $(\pm 6, 0)$  and vertices at  $(\pm 8, 0)$ .
22. Write an equation for an ellipse with center  $(-2, 3)$ , vertices  $(-2, 8)$  and  $(-2, -2)$ , and co-vertices  $(-6, 3)$  and  $(2, 3)$ . **Graph the ellipse.**
23. Write an equation of an ellipse with center  $(-4, 5)$ , vertical major axis of length 12, and minor axis of length 4. **Graph the ellipse.**

24. Find the foci of the graph  $\frac{x^2}{36} - \frac{y^2}{16} = 1$ .
25. Find the equation of a hyperbola with  $a = 31$  units and  $c = 76$  units. Assume that the transverse axis is horizontal.
26. Write an equation of a hyperbola with a vertex at  $(0, 4)$  and a focus at  $(0, 5)$ . Assume the transverse axis is vertical and the center is at the origin. **Graph the hyperbola.**
27. Write an equation of a hyperbola with vertices  $(8, -4)$  and  $(-4, -4)$ , and foci  $(12, -4)$  and  $(-8, -4)$ . **Graph the hyperbola.**

**# 28 – 35. Identify the conic section (circle, ellipse, hyperbola, or parabola).**

**If it is a parabola, give the vertex. If it is a circle, give the center and radius. If it is an ellipse or a hyperbola, give the center and foci.**

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|---|---|
| 28. $x^2 + y^2 + 4x + 4y = 28$          | 32. $5x^2 - 6y^2 + 50x + 60y - 55 = 0$  |
| 29. $y^2 - 4x + 4y - 8 = 0$             | 33. $5x^2 + 10y^2 + 40x + 40y + 70 = 0$ |
| 30. $7x^2 - 3y^2 + 70x + 18y + 127 = 0$ | 34. $y^2 - 2x - 10y + 19 = 0$           |
| 31. $2x^2 + 12y^2 - 20x - 48y + 74 = 0$ | 35. $x^2 + y^2 - 6x - 8y = 0$           |

## Chapter 10 Review Answer Section

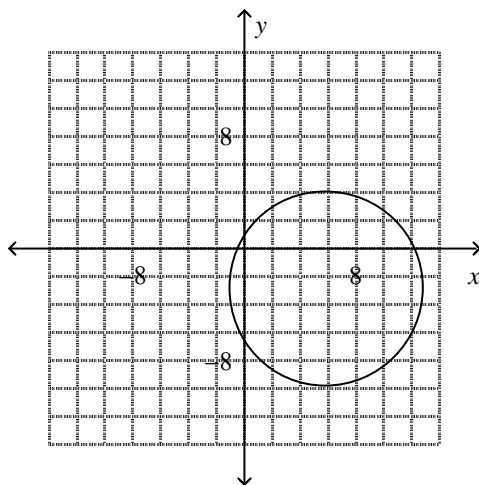
1.  $2a^2b^4\sqrt[3]{3a}$

2.  $\frac{a-7}{a+7}; a \neq -5, a \neq -7$

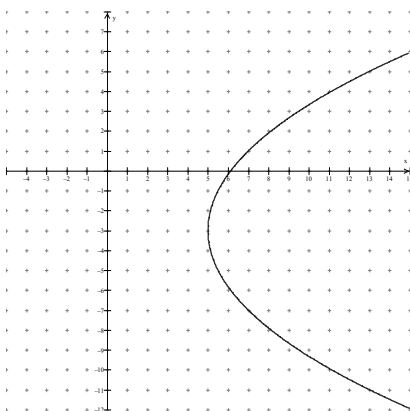
3.  $\frac{d+16}{d-3}$

4.  $\log_8(v^3x^6)$

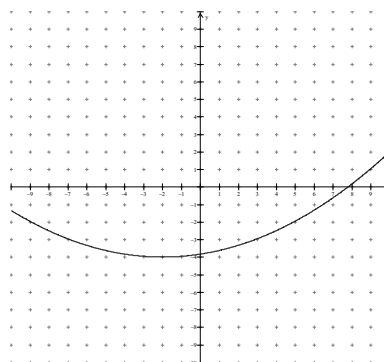
5.



6.



7.



8.  $x = -\frac{1}{8}y^2$

9.  $x = \frac{1}{36}y^2$

10.  $y = \frac{1}{28}x^2$

11.  $x = -\frac{1}{20}y^2$

12. vertex  $(-3, 4)$ , focus  $(-3, 6)$ , directrix at  $y = 2$

13. vertex  $(2, 5)$ , focus  $(5, 7)$ , directrix at  $y = -3$

14.  $(x-3)^2 + (y-3)^2 = 25$

15.  $(x-4)^2 + (y-6)^2 = 25$

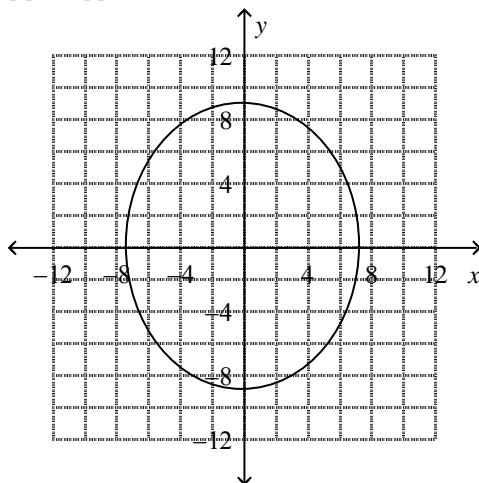
16.  $(x+7)^2 + (y+2)^2 = 9$

17.  $(-8, 6); 6$

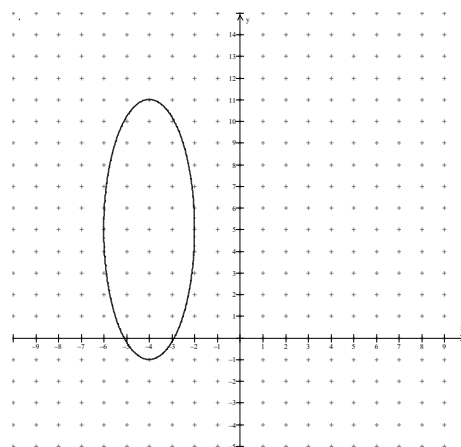
18.  $(2, -7); 5$

19.  $\frac{x^2}{9} + \frac{y^2}{4} = 1$

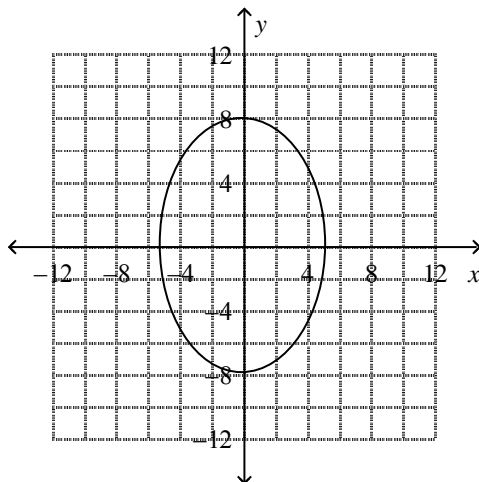
20.  $\frac{x^2}{56} + \frac{y^2}{81} = 1$



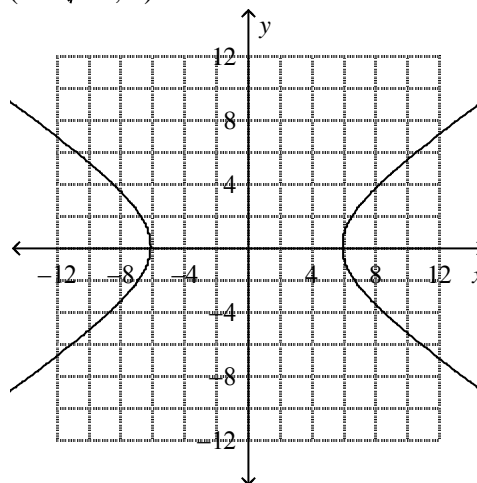
23.  $\frac{(x+4)^2}{4} + \frac{(y-5)^2}{36} = 1$



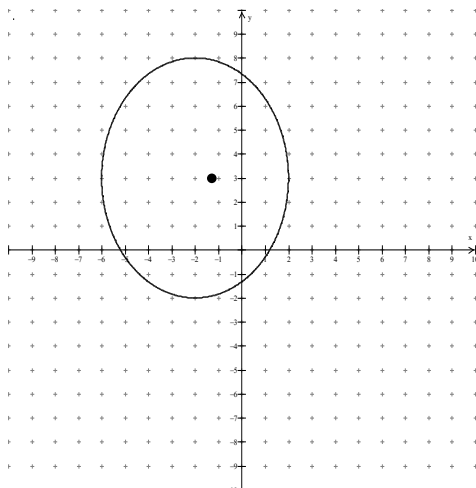
21.  $\frac{x^2}{28} + \frac{y^2}{64} = 1$



24.  $(\pm 2\sqrt{13}, 0)$

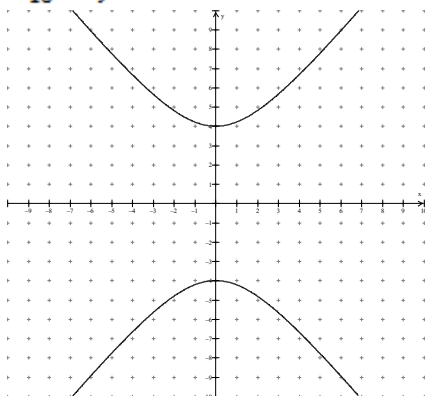


22.  $\frac{(x+2)^2}{16} + \frac{(y-3)^2}{25} = 1$



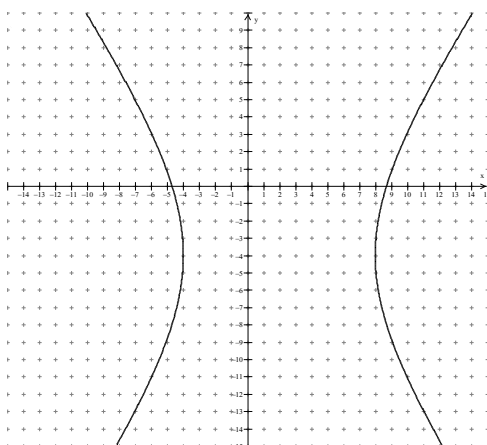
25.  $\frac{x^2}{961} - \frac{y^2}{5776} = 1$

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



27.

$$\frac{(x-2)^2}{36} - \frac{(y+4)^2}{64} = 1$$



28. circle; center  $(-2, -2)$ ; radius = 6
29. parabola; vertex  $(-3, -2)$
30. hyperbola with center  $(-5, 3)$ , foci at  $(-5 \pm \sqrt{10}, 3)$
31. ellipse with center  $(5, 2)$ , foci at  $(5 \pm \sqrt{10}, 2)$
32. hyperbola with center  $(-5, 5)$ , foci at  $(-5 \pm \sqrt{11}, 5)$
33. ellipse with center  $(-4, -2)$ , foci at  $(-4 \pm \sqrt{5}, -2)$
34. parabola; vertex  $(-3, 5)$
35. circle; center  $(3, 4)$ ; radius = 5