

Pre-Calculus Ch 9.1-9.3 Review

I. Write the equation in standard form, then graph each including all of the following that applies: center, vertex or vertices, focus or foci, directrix, and/or asymptotes.

1. $5y^2 - 4x^2 = 20$

2. $9x^2 + 6y^2 - 72x + 48y + 186 = 0$

3. $2x^2 + 2y^2 + 8x + 12y - 6 = 0$

4. $4y - 8x^2 = 0$

II. Write an equation (in standard form) for the conic with the given characteristics.

5. Circle: The center is at the origin and a point on the circle is $(8, -15)$.

6. Circle: The endpoints of the diameter are $(-1, 0)$ and $(7, 0)$.

7. Parabola: Vertex $(4, 2)$, Directrix $y = 4$

8. Parabola: Focus $(-2, 1)$, Directrix $x = -4$

Pre-Calculus Ch 9.1-9.3 Review

I. Write the equation in standard form, then graph each including all of the following that applies: center, vertex or vertices, focus or foci, directrix, and/or asymptotes.

1. $5y^2 - 4x^2 = 20$

2. $9x^2 + 6y^2 - 72x + 48y + 186 = 0$

3. $2x^2 + 2y^2 + 8x + 12y - 6 = 0$

4. $4y - 8x^2 = 0$

II. Write an equation (in standard form) for the conic with the given characteristics.

5. Circle: The center is at the origin and a point on the circle is $(8, -15)$.

6. Circle: The endpoints of the diameter are $(-1, 0)$ and $(7, 0)$.

7. Parabola: Vertex $(4, 2)$, Directrix $y = 4$

8. Parabola: Focus $(-2, 1)$, Directrix $x = -4$

Pre-Calculus Ch 9.1-9.3 Review

I. Write the equation in standard form, then graph each including all of the following that applies: center, vertex or vertices, focus or foci, directrix, and/or asymptotes.

1. $5y^2 - 4x^2 = 20$

2. $9x^2 + 6y^2 - 72x + 48y + 186 = 0$

3. $2x^2 + 2y^2 + 8x + 12y - 6 = 0$

4. $4y - 8x^2 = 0$

II. Write an equation (in standard form) for the conic with the given characteristics.

5. Circle: The center is at the origin and a point on the circle is $(8, -15)$.

6. Circle: The endpoints of the diameter are $(-1, 0)$ and $(7, 0)$.

7. Parabola: Vertex $(4, 2)$, Directrix $y = 4$

8. Parabola: Focus $(-2, 1)$, Directrix $x = -4$

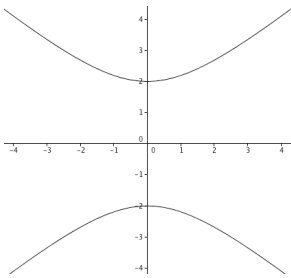
Chapter 9.1-9.3 Review Answers

1. Hyperbola:

$$\frac{y^2}{4} - \frac{x^2}{5} = 1; \text{ center : } (0,0);$$

vertices : $(0, \pm 2)$; foci : $(0, \pm 3)$;

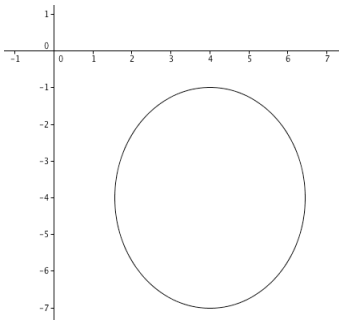
$$\text{asymptotes : } y = \pm \frac{2\sqrt{5}}{5} x$$



2. Ellipse:

$$\frac{(x-4)^2}{6} + \frac{(y+4)^2}{9} = 1; \text{ center : } (4, -4);$$

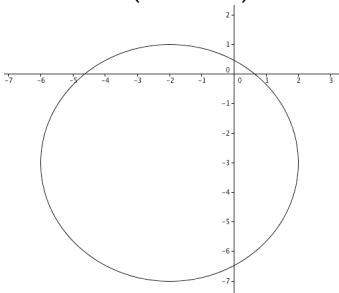
vertices : $(4, -1)$ and $(4, -7)$; foci : $(4, -4 \pm \sqrt{3})$



3. Circle:

$$(x+2)^2 + (y+3)^2 = 16;$$

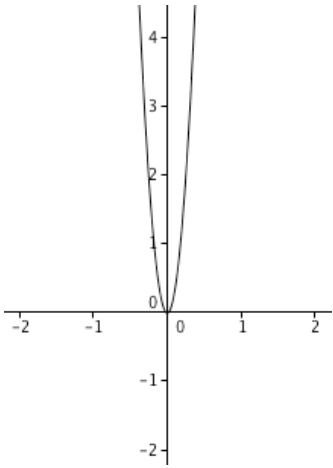
center : $(-2, -3)$; radius = 4



4. Parabola:

$$x^2 = \frac{1}{2}y; \text{ vertex : } (0, 0); \text{ focus : } \left(0, \frac{1}{8}\right);$$

$$\text{directrix : } y = -\frac{1}{8}; \text{ extra points : } \left(\pm\frac{1}{4}, \frac{1}{8}\right)$$



5. $x^2 + y^2 = 289$

6. $(x - 3)^2 + y^2 = 16$

7. $(x - 4)^2 = -8(y - 2)$

8. $(y - 1)^2 = 4(x + 3)$