

$$(x-h)^2 + (y-k)^2 = r^2 \qquad \frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1 \qquad \frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$$

$$(x-h)^2 = 4p(y-k)$$

Advanced Math
Chapter 6 Practice Test ANSWERS

1. Write an equation that represents all points (x,y) that are equal distance from the points (1, 4) and (1,10).

$Y = 7$

2. For the equation $4x^2 + 25y^2 - 24x + 50y = 39$ find the coordinates of the center, foci, and vertices.

Center: $(3, -1)$

Foci: $(3 + \sqrt{21}, -1)$ and $(3 - \sqrt{21}, -1)$

Vertices: $(8, -1), (3,1), (-2,-1), (3,-3)$

3. Write an equation in standard form for a hyperbola that has vertices at $(-2, -3)$ and $(6, -3)$ and a focus is at $(-3, -3)$. Also state the equations of the asymptotes.

Equation: $\frac{(x-2)^2}{4^2} - \frac{(y+3)^2}{3^2} = 1$

Asymptotes: $(y + 3) = \pm \frac{3}{4}(x - 2)$

For questions 5 and 6, identify the conic section represented by the equation.

4. $4x^2 - 7x + 2y^2 = 10$

Ellipse

5. $4y^2 + 6x = -5y + 20$

Parabola

6. A parabola passes through the point $(-3,1)$ has a vertex at $(-2, -3)$ and opens to the left. Write its equation.

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

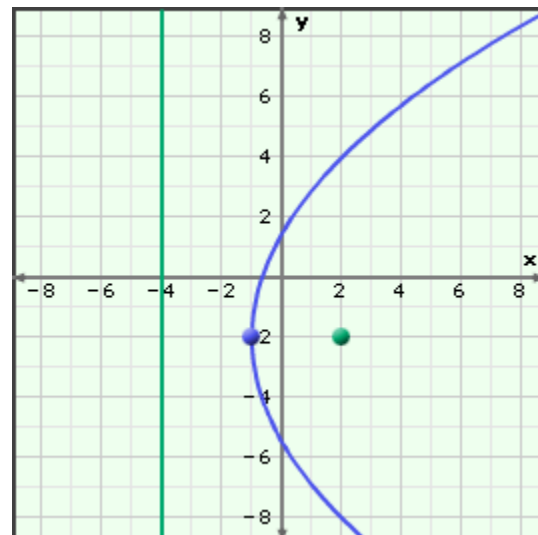
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$$(x-h)^2 = 4p(y-k)$$

$$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$$

7. Write the standard form of the equation that represents the parabola that is shown at the right.

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



8. Write the equation of an ellipse that has foci at (2,0) and (-2,0) and a major axis 14 units in length.

$$\frac{x^2}{7^2} + \frac{y^2}{(\sqrt{45})^2} = 1$$

9. A(n) **ellipse** is the set of all points (x,y) the sum of whose distances from 2 fixed points called foci is constant
10. A(n) **hyperbola** is the set of all points (x,y) the difference of whose distances from 2 fixed points called foci is constant.
11. A(n) **parabola** is the set of all points (x,y) that are equal distance from a point and a line.

12. Discuss the domain and range of the graph $\frac{(x-3)^2}{4^2} - \frac{(y-1)^2}{5^2} = 1$

Domain: $-1 \leq x \leq 7$

Range: All reals

13. Graph the conic section

$$\frac{(y-3)^2}{16} - \frac{(x-1)^2}{4} = 1$$

