

1. Write the equation for the locus of points such that the difference in the distances from (x, y) to $(-3, 2)$ and $(5, 2)$ is 7.

2. Write the equation of the curve with vertices at $(-2, 1)$ and $(6, 1)$ and $e = \frac{3}{2}$.

3. Write an equation for the hyperbola with vertices at $(1, 0)$ and $(1, 4)$, and asymptotes $y = \frac{2}{3}x + \frac{4}{3}$ and $y = -\frac{2}{3}x + \frac{8}{3}$.

4. Rewrite the equation in standard form, and state the eccentricity.
State the coordinates of the foci and the equations of the asymptotes. Graph.

a. $6x^2 - 24x - 5y^2 - 10y - 11 = 0$

b. $-2x^2 + y^2 + 4x - 8y = 2$

5. Write the equation for the hyperbola with foci at $(0, -2 + \sqrt{10})$ and $(0, -2 - \sqrt{10})$ and vertices at $(0, 1)$ and $(0, -5)$.