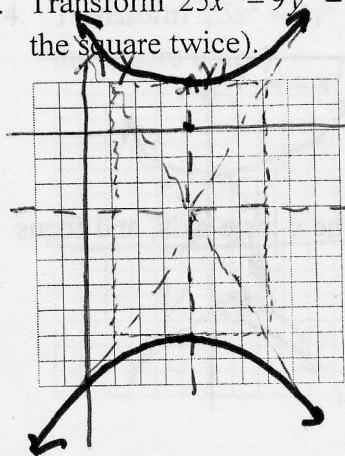


4. Transform  $25x^2 - 9y^2 - 200x - 54y + 544 = 0$  to standard form and graph. (Hint: Complete the square twice).



$$(25x^2 - 200x) - 9(y^2 + 6y) = -544$$

$$25(x^2 - 8x) - 9(y^2 + 6y) = -544$$

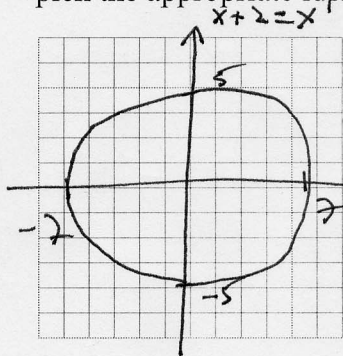
$$25(x^2 - 8x + 16) - 9(y^2 + 6y + 9) = \begin{matrix} -544 \\ +400 \\ -81 \end{matrix}$$

$$25(x-4)^2 - 9(y+3)^2 = -225$$

$$-\frac{(x-4)^2}{9} + \frac{(y+3)^2}{25} = 1$$

$$\frac{(y+3)^2}{25} - \frac{(x-4)^2}{9} = 1$$

5. Eliminate the parameter and graph  $x = -2 + 7\cos\theta$ ,  $y = 3 - 5\sin\theta$ . (Hint: To eliminate the parameter means to "get rid of theta. To do this, first graph the function parametrically, then pick the appropriate identity, and last eliminate the parameter).



$$x = -2 + 7\cos\theta \Rightarrow \frac{x+2}{7} = \cos\theta$$

$$y = 3 - 5\sin\theta \Rightarrow \left(\frac{y-3}{-5}\right) = \sin\theta$$

$$\sin^2\theta + \cos^2\theta = 1$$

$$\left(\frac{x+2}{7}\right)^2 + \left(\frac{y-3}{-5}\right)^2 = 1$$