1. Graph the hyperbola $\dfrac{x^2}{36} - \dfrac{y^2}{9} = 1$. Find its foci. F = _____

2. Graph the hyperbola $\dfrac{y^2}{9} - \dfrac{x^2}{36} = 1$. Find its foci. F = _____

3. Find the equation of the hyperbola with center at the origin, a vertex at (0,4), and an asymptote with equation $y = \dfrac{2}{3}x$.   _____

4. Sketch the hyperbola $x^2 - 9y^2 + 2x + 36y - 44 = 0$. Find the coordinates of its vertices and foci and the equations of its asymptotes.

V = _____

F = _____

A = _____

Worksheet 9:4B
Hyperbolas

1.   Discuss (find the critical attributes) and graph $-x^2 + 4y^2 - 2x - 16y + 11 = 0$.

2.   Suppose that two people standing 1 mile apart both see a flash of lightning. After a period of time, the person standing at point A hears the thunder. One second later, the person standing at point B hears the thunder. If the person at B is due west of the person at A and the lightning strike is know to occur due north of the person standing at point A, where did the lightning strike? (Sound travels at 1100 feet per second)