Math 170 Review
Ch. 11 Conics

1) Determine the conic, and then put into standard form and sketch
$x^2 + 4y^2 - 6x + 16y + 21 = 0$

2) Sketch the parabola, state the vertex, focus and equation of the directrix $x^2 = -8y$

3) Sketch the hyperbola $\frac{(x-1)^2}{9} - \frac{(y+3)^2}{16} = 1$ State the vertices and foci.

4) Obtain the equation of the parabola with vertex (2,-3) and focus (2,-4)

5) Find the equation of the ellipse with Foci $(\pm 3, 0)$ and vertices $(\pm 5, 0)$

6) Graph the hyperbola: $9y^2 - 16x^2 = 144$ state the vertices, foci and equations of the asymptotes

Answers:

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

2) Parabola faces down, vertex at (0,0) foci at (0,-2) directrix y = 2

3) Hyperbola faces left/right. Vertices (4,-3) and (-2,-3), foci (6,-3) and (-4,-3)

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

5) $\frac{x^2}{25} + \frac{y^2}{16} = 1$

6) Hyperbola faces up/down. Vertices at (0,4) and (0,-4) Foci at (0,5) and (0,-5)
Asymptotes at $y = \pm\frac{4}{3}x$