Class Discussion

Unit 9 Topic 3 Part 1 hyperbola

Standard forms:

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

$-\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=1$ (with vertical transverse axis)

Steps to graph a hyperbola

1. find Center

2. construct the box formed by a and b (with center at h,k)

3. construct the diagonals of the box (the asymptotes)

4. sketch based on the standard forms

Ex 1: find the characteristics of a hyperbola $\frac{(x-4)^2}{16}-\frac{(y-2)^2}{4}=1$ .

Ex 2: find the standard form and characteristics of the hyperbola: $3y^2-x^2-2x-12y-1=0$