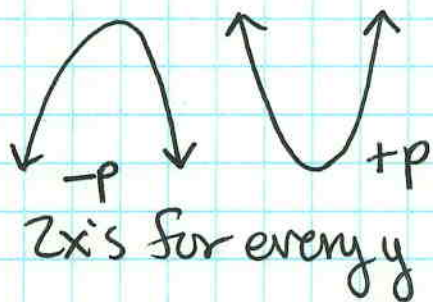


Chp 7 parabola Review

Std. Form

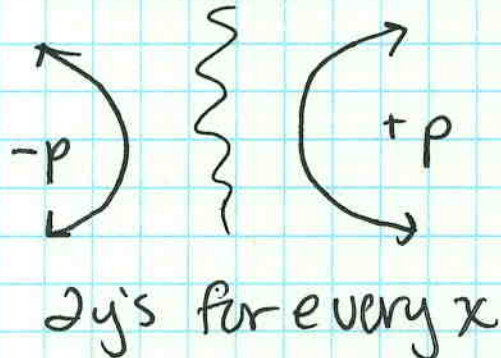
$$(x-h)^2 = 4p(y-k)$$

vertical



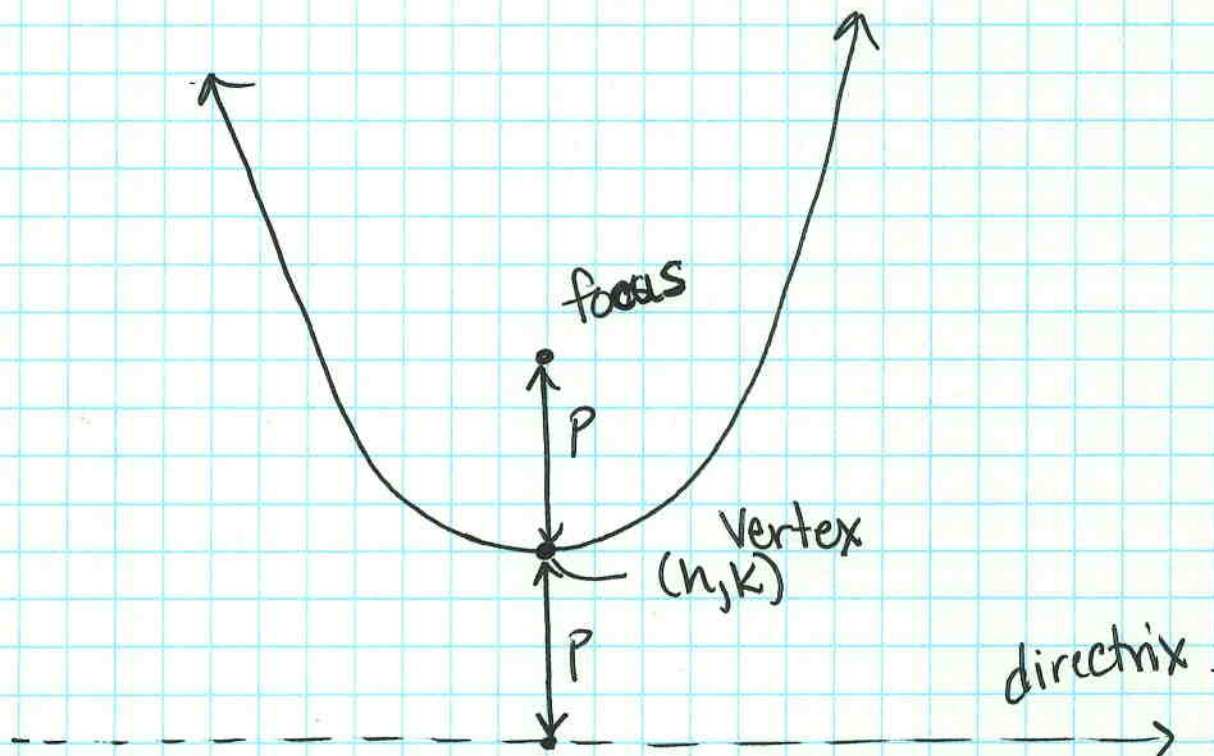
$$(y-k)^2 = 4p(x-h)$$

horizontal



* $4p$ on not squared side of $=$

* variables are on opposite sides of $=$



Ellipses

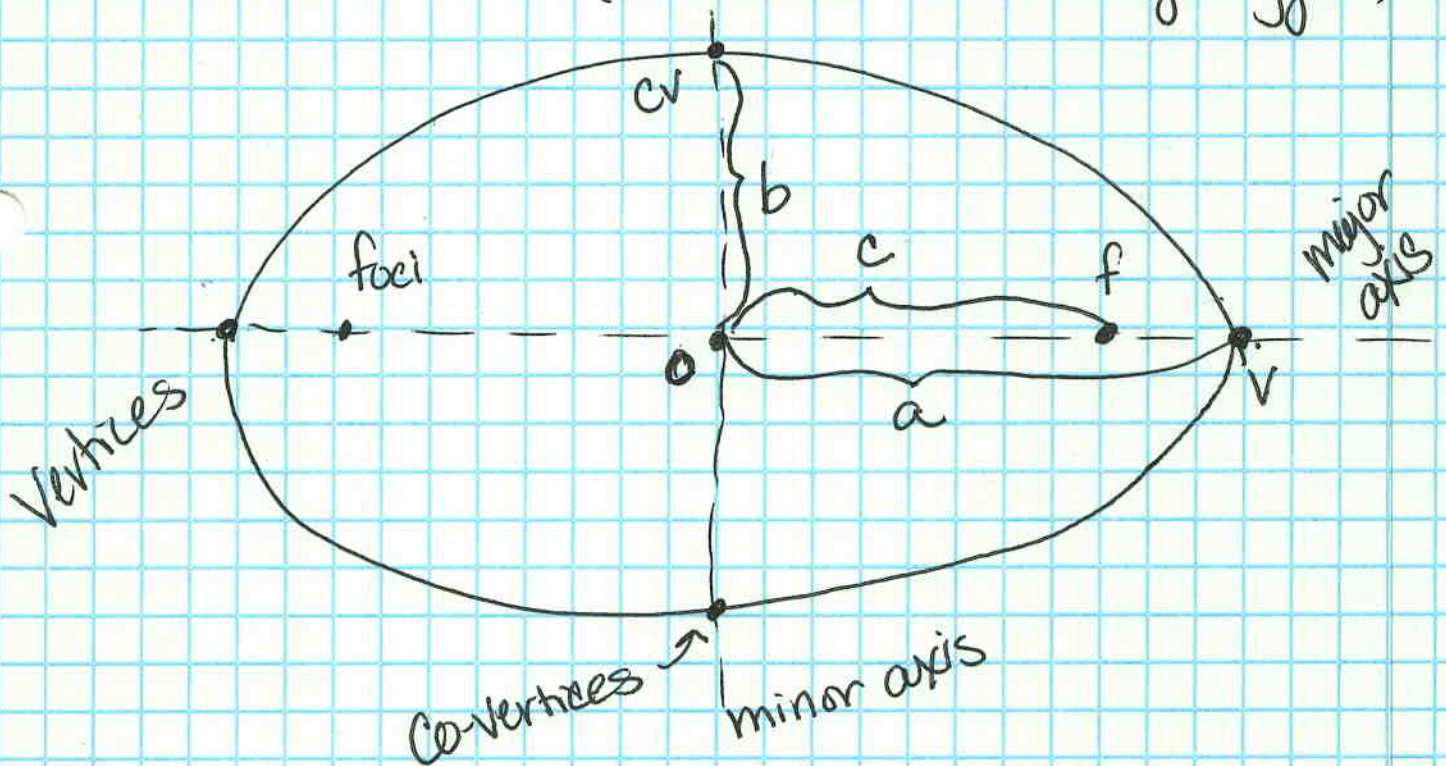
Recall Std Form $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$

$a^2 \rightarrow$ bigger number

Orientation: Big under x \leftrightarrow Horizontal
Big under y \updownarrow Vertical

$b^2 \rightarrow$ smaller

$c^2 = a^2 - b^2$ (Remember "a" always biggest)



$e = \frac{c}{a}$

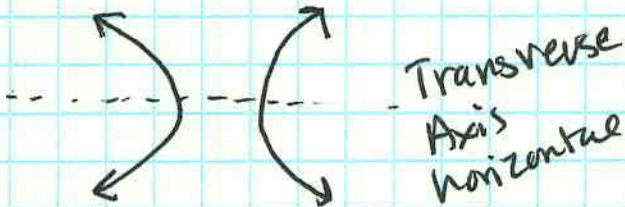
~~###~~: 474: 22-29, 57

Hyperbola Review

Std. Form

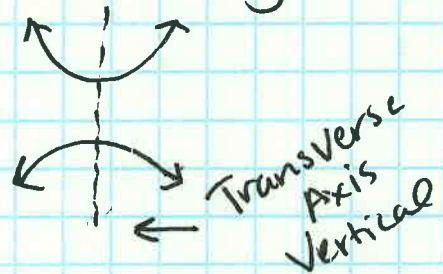
$$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$$

horizontal (x is positive)



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

vertical (y is positive)

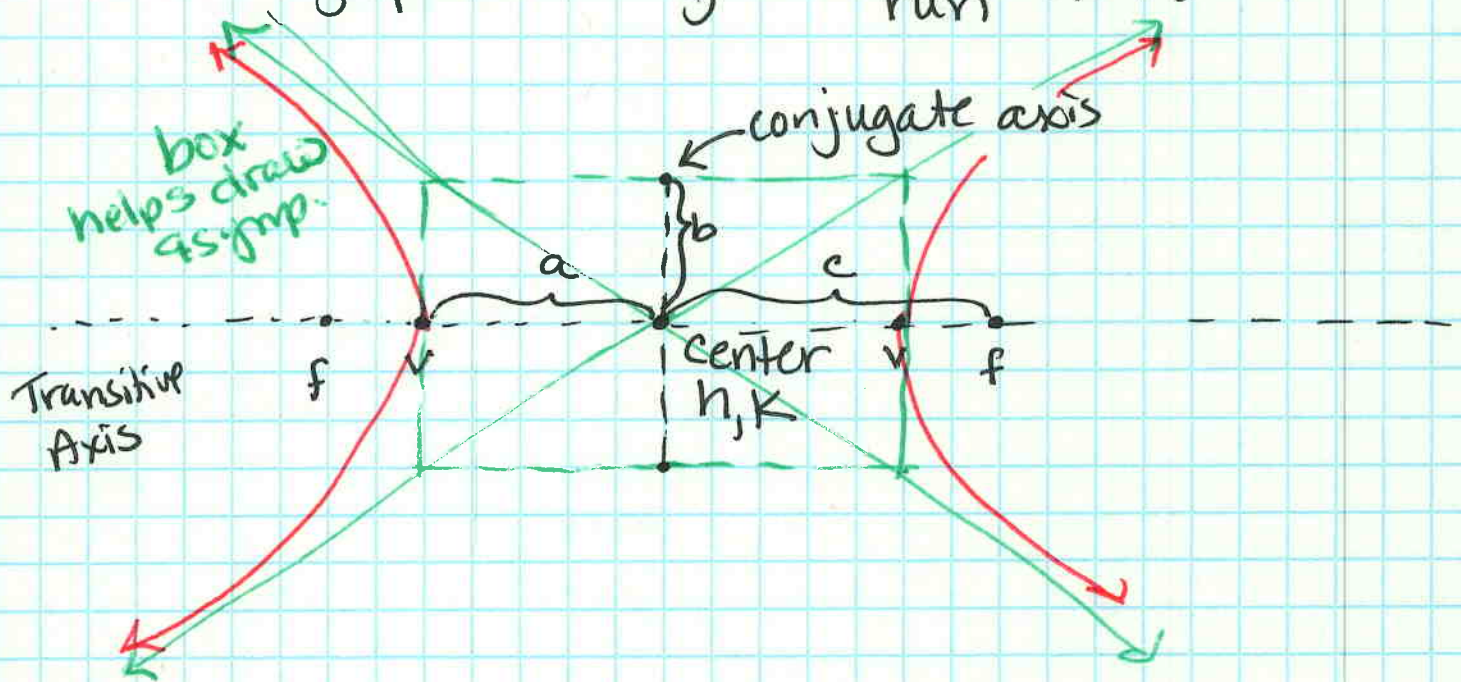


$a \rightarrow$ first denominator
distance from vertex to center

$b \rightarrow$ second denominator
conjugate axis length
asymptote slope

$c \rightarrow c^2 = a^2 + b^2$ (adds - c bigger than a)

asymptotes: $y - k = \pm \frac{\text{rise}}{\text{run}} (x - h)$



Discriminant

General Form for Any Conic

$$Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$$

Discriminant

$$B^2 - 4AC$$

$$B^2 - 4AC < 0$$

ellipse

or
circle $B=0$
AND $A=C$

$$B^2 - 4AC = 0$$

parabola

$$B^2 - 4AC > 0$$

hyperbola