

10.4 Hyperbolas

Pg. 650
#11

Conjugate axis = 6 Vertices (3,4)(3,0)

Use formula sheet

$$\frac{2b}{2} = \frac{6}{2}$$

$$b = 3$$

$$a = 2$$

Center $(\frac{3+3}{2}, \frac{4+0}{2})$

$$(3, 2)$$

$$(h, k)$$

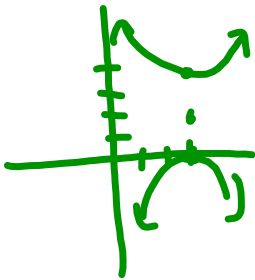
Vertices $(h, k \pm a)$



$$2 \pm a$$

$$2 \pm a = 4$$

$$-2 \pm a = 2$$



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

Review

Put $4x^2 - y^2 + 24x + 4y + 28 = 0$ in standard form

$$4x^2 + 24x - y^2 + 4y = -28$$

$$4(x^2 + 6x + (\frac{6}{2})^2) - 1(y^2 - 4y + (\frac{-4}{2})^2) = -28$$

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

+ 9(4)
+ 4(-1)

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