

Day 2 Notes

Monday, April 20, 2015 9:06 AM

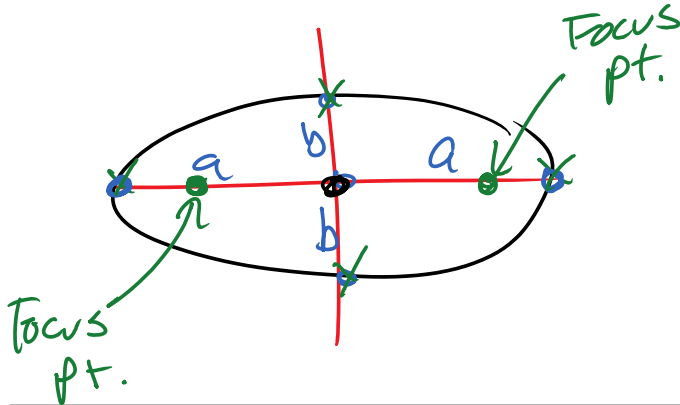
$$x = 4 \cos t + 3$$

$$y = 2 \sin t + 2$$

Precalculus
Conics - Ellipses - Day 1 Notes

Name:
Period:

What is an **ELLIPSE**? How does it compare to a **CIRCLE**?



Center (h, k)

$2a \Rightarrow$ Major axis

$2b \Rightarrow$ Minor axis

EQUATION OF AN ELLIPSE

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

Parametric

$$x = a \cos t + h$$

$$y = b \sin t + k$$

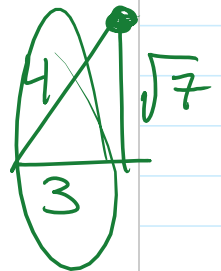
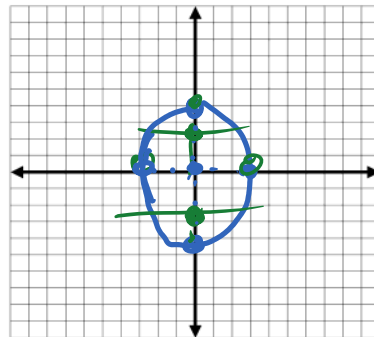
$a > b$ x-axis \Rightarrow Major axis

$b > a$ y-axis \Rightarrow Major axis

Graph the following. Be sure to include the center, focal points, and chords.

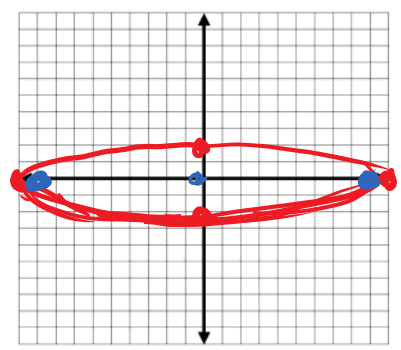
1. $\frac{x^2}{9} + \frac{y^2}{16} = 1$

Major Chords $(0, \pm 4)$
Minor $(\pm 3, 0)$
Focal $(0, \pm \sqrt{7})$



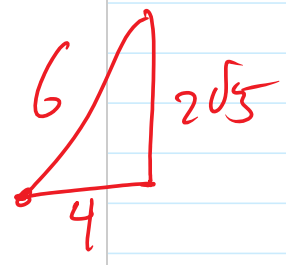
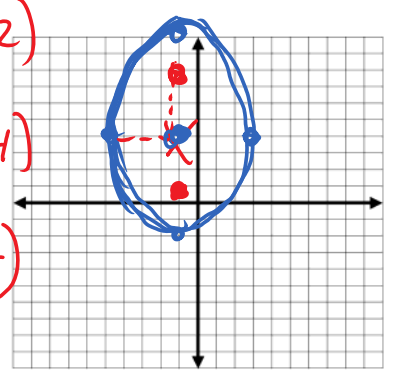
2. $x^2 + 25y^2 = 100$
 $\frac{x^2}{100} + \frac{y^2}{4} = 1$

Chord
Major $(\pm 10, 0)$
Minor $(0, \pm 2)$
Focal $(\pm 4\sqrt{6}, 0)$



3. $\frac{(x+1)^2}{16} + \frac{(y-4)^2}{36} = 1$
 $(-1, 4)$
 $a = 4$
 $b = 6$

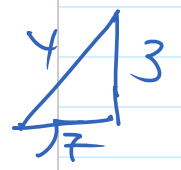
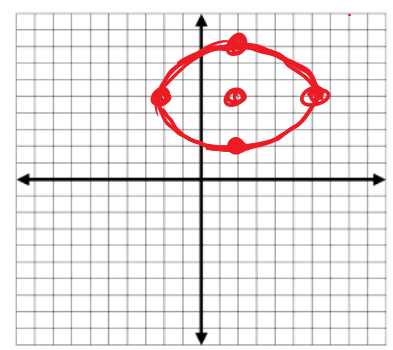
Major $(-1, 10), (-1, -2)$
Minor $(3, 4), (-5, 4)$
Focal $(-1, 4 \pm 2\sqrt{5})$



4. Parametric Form: $X = 2 + 4 \cos T$
 $Y = 5 + 3 \sin T$

Center $(2, 5)$

Chords
Major $(6, 5), (-2, 5)$
Minor $(2, 8), (2, 2)$
Focal $(2 \pm \sqrt{7}, 5)$



$\frac{(x-2)^2}{16} + \frac{(y-5)^2}{9} = 1$