*AAT

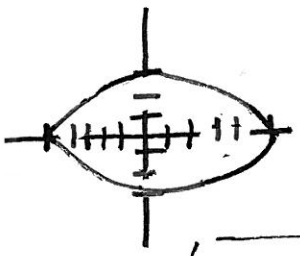
Chapter 11: Ellipses (IC)

Name: Key

Date: _____ Period: _____

Compute the coordinates of the foci for each ellipse.

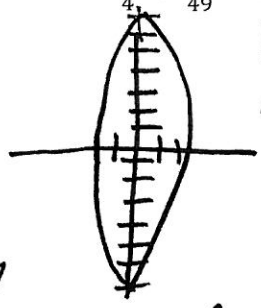
1. $\frac{x^2}{25}+\frac{y^2}{9}=1$



$a=5$
$b=3$
$c^2=a^2-b^2$
$c^2=25-9$
$c^2=16$
$c=\pm 4$

$F(-4,0)\div(4,0)$

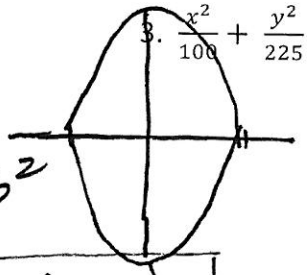
2. $\frac{x^2}{4}+\frac{y^2}{49}=1$



$b=2$
$a=7$
$c^2=a^2-b^2$
$=49-4$
$=45$
$c=\pm 3\sqrt{5}$

$F(0,3\sqrt{5})\div(0,-3\sqrt{5})$

3. $\frac{x^2}{100}+\frac{y^2}{225}=1$

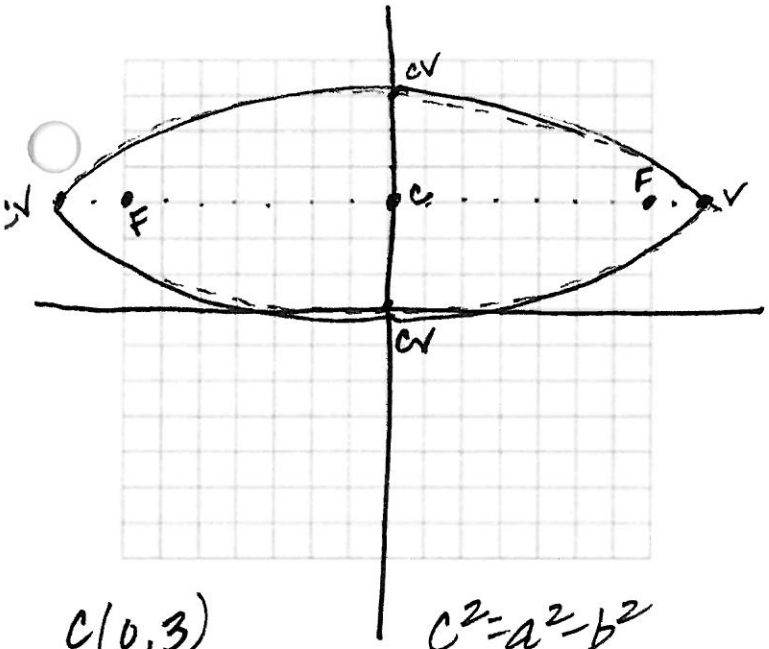


$a=15$
$b=10$
$c^2=a^2-b^2$
$=225-100$
$c^2=125$
$c=\pm 5\sqrt{5}$

$F(0,5\sqrt{5}),(0,-5\sqrt{5})$

Identify the coordinates of the center, foci, vertices, and co-vertices and identify equations for the major and minor axes for each ellipse. Then sketch a graph of each ellipse.

4. $\frac{x^2}{81}+\frac{(y-3)^2}{9}=1$



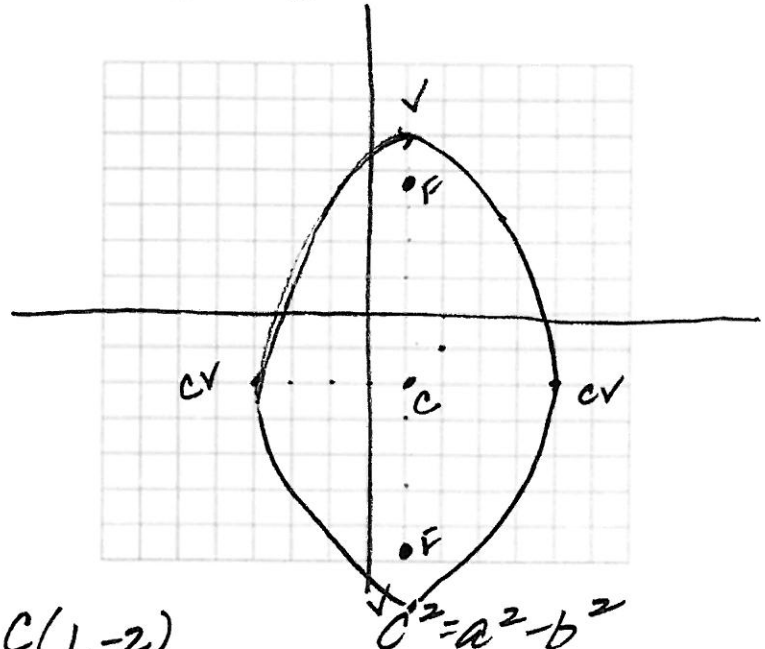
$C(0,3)$
$V(-9,3),(9,3)$
$CV(0,0),(0,6)$

$c^2=a^2-b^2$
$81-9$
$c^2=72$
$c=\pm 6\sqrt{2}$

$F(6\sqrt{2},3)\div(-6\sqrt{2},3)$
(8.49, −8.49)

major: $y=3$
minor: $x=0$

5. $\frac{(y+2)^2}{49}+\frac{(x-1)^2}{16}=1$



$C(1,-2)$
$V(1,-9)\div(1,5)$
$CV(5,-2)\div(-3,-2)$

$c^2=a^2-b^2$
$=49-16$
$=33$
$c=\pm\sqrt{33}$

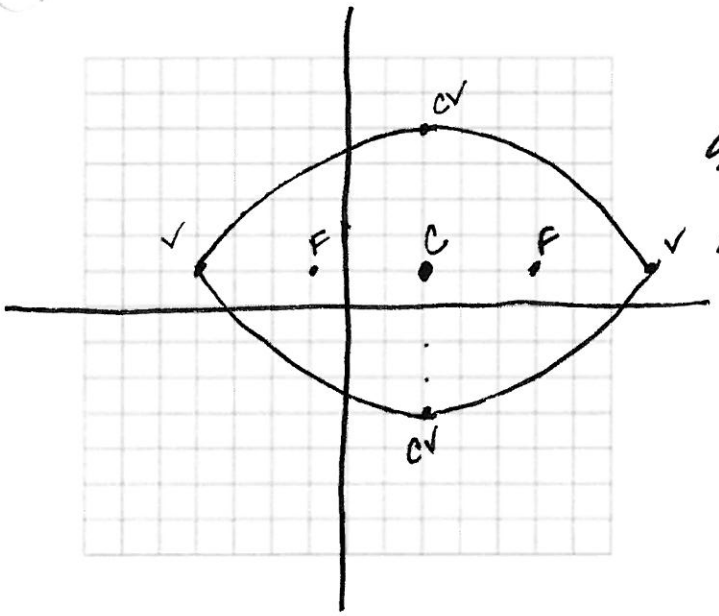
$F(1,-2\pm\sqrt{33})$

major: $x=1$
minor: $y=-2$

Write an algebraic equation for each ellipse defined by the given information. Then sketch a graph of each ellipse.

6. Vertices at (-4, 1) and (8, 1); Foci at (-1, 1) and (5, 1)

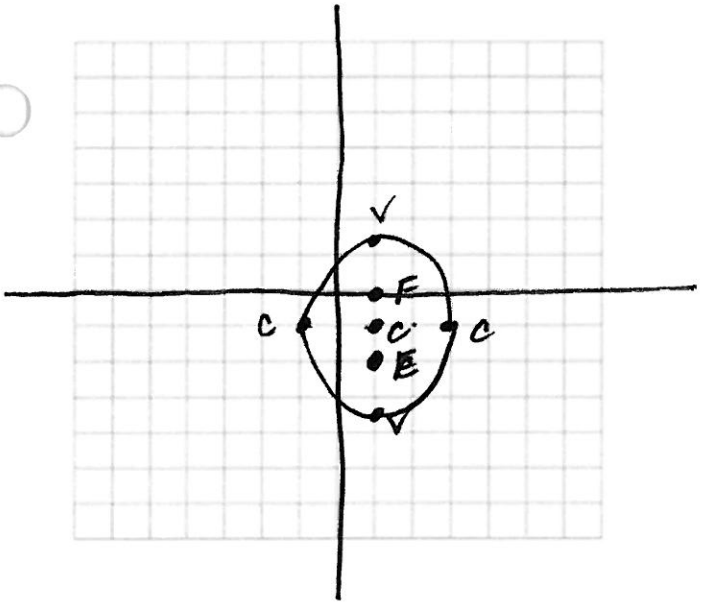
$c = 3$
$a = 6$



$c^2 = a^2 - b^2$
$9 = 36 - b^2$
$b^2 = 27$

$$\frac{(x-2)^2}{36} + \frac{(y-1)^2}{27} = 1$$

7. Foci at (1, -2) and (1,0); Co-vertices at (-1,-1) and (3,-1)



$c^2 = a^2 - b^2$
$1 = a^2 - 4$
$5 = a^2$

$$\frac{(y+1)^2}{5} + \frac{(x-1)^2}{4} = 1$$