Bellwork Alg 2B Tuesday, November 28, 2017

1. State the coordinates of the Center, Vertices, Co-Vertices, and Foci.

$$\frac{(x-7)^2}{196}+\frac{(y+6)^2}{441}=1$$

Center: Vertices: Co-Vertices: Foci:

Write the equation of each ellipse.

2. The Co-Vertices are $(8,-2)$ & $(8,-12)$ and a Focus is $(-2,-7)$

EQ:

3. A Vertex is at $(13,-7)$. A Focus on the same side of the center as the given Vertex is at $(13,-11)$. The length of the Major Axis is 30.

EQ:

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Answers

1. State the coordinates of the Center, Vertices, Co-Vertices, and Foci.

$\frac{(x-7)^2}{196} + \frac{(y+6)^2}{441} = 1$

major axis is vertical

$a^2 = 441$ $a = 21$

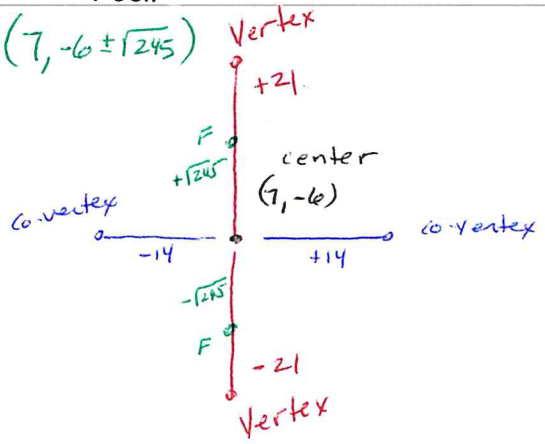
$b^2 = 196$ $b = 14$

$c^2 = a^2 - b^2$

$c^2 = 441 - 196 = 245$

$c = \sqrt{245}$

Center:	Vertices:	Co-Vertices:	Foci:
$(7, -6)$	$(7, 15)$	$(-7, -6)$	$(7, -6 \pm \sqrt{245})$
	$(7, -27)$	$(21, -6)$	



Write the equation of each ellipse.

2. The Co-Vertices are $(8, -2)$ & $(8, -12)$ and a Focus is $(-2, -7)$

EQ:

center is midpoint of these

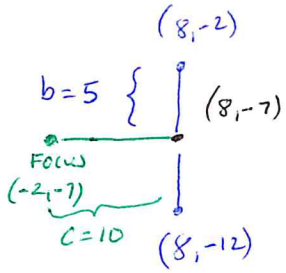
center: $\left(\frac{8+8}{2}, \frac{-2+-12}{2}\right)$

$(8, -7)$

co-vertices lie on a vertical line → b^2 under y

Therefore major axis is Horizontal → a^2 under x

$$\frac{(x-8)^2}{125} + \frac{(y+7)^2}{25} = 1$$



$b = 5$ $c = 10$

$b^2 = 25$ $c^2 = 100$

$c^2 = a^2 - b^2$

$100 = a^2 - 25$

$a^2 = 125$

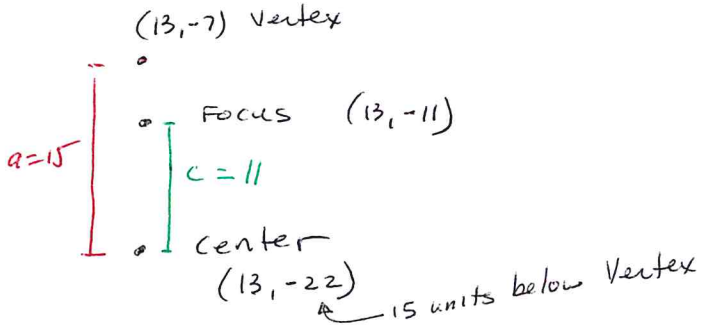
3. A Vertex is at $(13, -7)$. A Focus on the same side of the center as the given Vertex is at $(13, -11)$. The length of the Major Axis is 30.

EQ:

$2a = 30$

$a = 15$

$$\frac{(x-13)^2}{104} + \frac{(y+22)^2}{225} = 1$$



$a = 15$ $c = 11$ $c^2 = a^2 - b^2$

$a^2 = 225$ $c^2 = 121$ $121 = 225 - b^2$

$b^2 = 104$

major axis is Vertical → a^2 under y