Bellwork Alg 2B Tuesday, November 21, 2017

1. Find the coordinates of the Vertices, Co-Vertices and Foci.

a) $\frac{x^2}{441} + \frac{y^2}{625} = 1$

Vertices:

Co-Vertices:

Foci:

b) $5x^2 + y^2 = 1$

Vertices:

Co-Vertices:

Foci:

Write the equation of each Ellipse. The center is at the origin.

2. A Focus is at $(-11, 0)$ and a Co-Vertex is at $(0, 6)$.

3. A Focus is at $(0, 7)$ and the length of the Major Axis is 24.

4. The height is 20 and a Co-Vertex is at $(-4, 0)$

Bellwork Alg 2B Tuesday, November 21, 2017 Answers

1. Find the coordinates of the Vertices, Co-Vertices and Foci.

a) $\frac{x^2}{441} + \frac{y^2}{625} = 1$

Vertices: $(0, \pm 25)$

Co-Vertices: $(\pm 21, 0)$

Foci: $(0, \pm \sqrt{184})$

major axis is VERTICAL

$a^2 = 625$

$a = \pm 25$

$b^2 = 441$

$b = \pm 21$

$c^2 = 625 - 441 = 184 \quad c = \pm \sqrt{184}$

b) $5x^2 + y^2 = 1 \rightarrow \frac{x^2}{\frac{1}{5}} + \frac{y^2}{1} = 1$

Vertices: $(0, \pm 1)$

Co-Vertices: $(\pm \sqrt{1/5}, 0)$

Foci: $(0, \pm \sqrt{4/5})$

major axis is VERTICAL

$a^2 = 1 \rightarrow a = \pm 1$

$b^2 = 1/5 \rightarrow b = \pm \sqrt{1/5}$

$c^2 = a^2 - b^2 = 1 - 1/5 = \frac{4}{5}$

$c = \pm \sqrt{4/5}$

Write the equation of each Ellipse. The center is at the origin.

2. A Focus is at $(-11, 0)$ and a Co-Vertex is at $(0, 6)$.

$c = 11 \quad c^2 = 121$

$b = 6 \quad b^2 = 36$

$121 = a^2 - 36$

$a^2 = 157$

major axis is Horizontal

$$\frac{x^2}{157} + \frac{y^2}{36} = 1$$

3. A Focus is at $(0, 7)$ and the length of the Major Axis is 24.

$c = 7$

$c^2 = 49$

$2a = 24$

$a = 12$

$a^2 = 144$

$49 = 144 - b^2$

$b^2 = 95$

major axis is VERTICAL

$$\frac{x^2}{95} + \frac{y^2}{144} = 1$$

4. The height is 20 and a Co-Vertex is at $(-4, 0)$

this is major axis

$2a = 20$

$a = 10$

$a^2 = 100$

$b = 4$

$b^2 = 16$

minor axis is Horizontal

$$\frac{x^2}{16} + \frac{y^2}{100} = 1$$