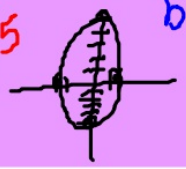
10.4 Review - Warm - up

1. What is an equation in standard form of an ellipse centered at the origin with a vertex at (0, 5) and a co-vertex at (−2, 0)?

(0,-5) $a=5$ $a^2=25$

$b=2$ $b^2=4$ (2,0)



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

2. What are the foci of the ellipse with the equation $289x^2 + 64y^2 = 18{,}496$?

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

$c^2=289-64$

$\sqrt{c^2}=\sqrt{225}$

$c=15$

(0,15)(0,-15)

$\frac{18,496}{18,496}$ $\frac{18,496}{18,496}$ $\frac{18,496}{18,496}$

$$\frac{x^2}{64}+\frac{y^2}{289}=1$$

(b^2) (a^2)

3. What is the standard form equation of the ellipse centered at the origin with co-vertices (±16, 0) and foci (0, ±12)?

$b=16$ $b^2=256$

$c=12$ $c^2=144$

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

$144=a^2-256$

$+256 \quad +256$

$400=a^2$ ✓

$20=a$

(0,20)(0,-20)

$$\frac{x^2}{256}+\frac{y^2}{400}=1$$