

Warm-up 7: Ellipses

$$\frac{x^2}{49} + \frac{(y+3)^2}{16} = 1$$

center = $(0, -3)$

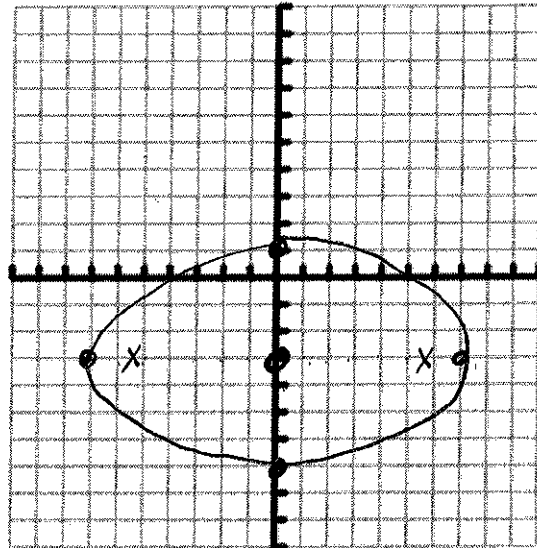
vertices = $(\pm 7, -3)$

co-vertices = $(0, 1)(0, -7)$

foci = $(\pm \sqrt{33}, -3)$

major length = $2a = 2(7) = 14$

minor length = $2b = 2(4) = 8$



$$a^2 = 49$$

$$a = 7 \text{ (x-dir)}$$

$$b^2 = 16$$

$$b = 4 \text{ (y-dir)}$$

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

$$c^2 = 49 - 16$$

$$c^2 = 33$$

$$c = \sqrt{33}$$

$$\approx 5.7$$