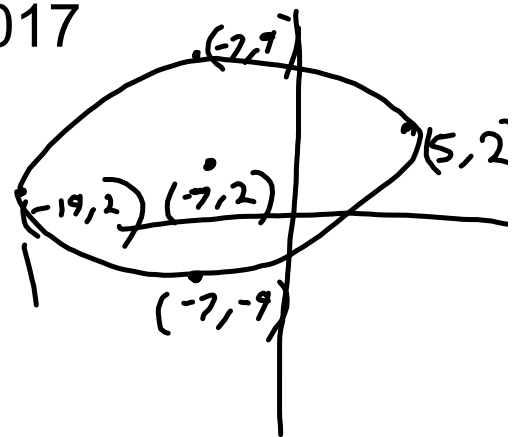# Warm-Up

February 9, 2017

Graph.

$$\frac{(x+7)^2}{144} + \frac{(y-2)^2}{49} =$$

center: $(-7, 2)$

$a = 12$ $b = 7$

Vertices: $(-7 \pm 12, 2)$

covertices: $(-7, 2 \pm 7)$

$c = \sqrt{95}$

foci: $(-7 \pm \sqrt{95}, 2)$

center
a , b
vertices
co vertices
c
foci

(h , k)   h or V?
a , b
$$C^2 = a^2 - b^2$$

2. a V: $(5, 10)$, $(-21, 10)$ horizontal

c f: $(-3, 10)$, $(-13, 10)$

$$\left(\frac{5 + -21}{2}, \frac{10 + 10}{2} \right)$$

$$\left(\frac{-16}{2}, \frac{20}{2} \right)$$

$$(-8, 10)$$

$$\frac{(x+8)^2}{169} + \frac{(y-10)^2}{144} = 1$$

$a = 13$ $c = 5$

$$a^2 - b^2 = c^2$$
$$169 - b^2 = 25$$
$$+b^2 \quad +b^2$$
$$169 = 25 + b^2$$
$$-25 \quad -25$$
$$144 = b^2$$

$$b = 12$$

4. center: (0,1)   vertical

a V: (0,6)

b CV: (1,1)

$a = 7$ $b = 1$

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

$V: (6, -3), (-4, -3)$ A horizontal

$F: (5, -3), (-3, -3)$ C

$$\left(\frac{6 + -4}{2}, \frac{-3 + -3}{2} \right)$$

$$(1, -3)$$

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

$c = 4$ $16 = 25 - b^2$

        $+b^2$ $+b^2$

$$16 + b^2 = 25$$

$$b^2 = 25 - 16 = 9$$

$$b = 3$$

$$\frac{(x-1)^2}{25} + \frac{(y+3)^2}{9} = 1$$

⑦ c Foci: $(9, 5 + 5\sqrt{3})$ $(9.5 - 5\sqrt{3})$

b End of minor axis: Hor. $(14, 5)$ $(4, 5)$

co-vertices

$s^2 \cdot \sqrt{3}^2$

$c^2 = 25 \cdot 3$

$c^2 = 75$

center $\left(\dfrac{14 + 4}{2}, \dfrac{5 + 5}{2} \right)$

$C = 5\sqrt{3}$

① $\dfrac{18}{2}$, $\dfrac{10}{2}$

$b = 5$ $b^2 = 5^2 = 25$

$(9, 5)$

vertical

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

$\dfrac{(x - 9)^2}{(x - h)^2} + \dfrac{(5 - 5)^2}{(y - k)^2} = 1$

$+b^2 \quad +b^2$

$\dfrac{5^2}{}$ $\dfrac{100}{}$

$c^2 + b^2 = a^2$

$75 + 25$

$100 = a^2$

$\boxed{\dfrac{(x - 9)^2}{25} + \dfrac{(y - 5)^2}{100} = 1}$

$$4x^2 - 5y^2 + 40x - 30y - 45 = 0$$
$$\ +45 \ +45$$

$$4x^2 - 5y^2 + 40x - 30y = 45$$

$$4(x^2 + 10x + \boxed{25}) - 5(y^2 + 6y + \boxed{9}) = 45 + 4\boxed{25} - 5\boxed{9}$$

$$\frac{\cancel{4}(x+5)^2}{\cancel{100}\ 25} - \frac{\cancel{5}(y+3)^2}{\cancel{100}\ 20} = \frac{\cancel{45} + 100 - \cancel{45}}{100}$$

$$\frac{(x+5)^2}{25} \ominus \frac{(y+3)^2}{20} = 1$$

$$\frac{\frac{1}{2}}{\left(\frac{5}{-1}\right)} \circlearrowleft \cdot \frac{5}{-1}$$

$$\frac{1}{\left(\frac{100}{25}\right)} \circlearrowleft \cdot \frac{25}{100} = \frac{25}{100}$$

$$\frac{25 \div 25}{100 \div 25} = \frac{1}{4}$$