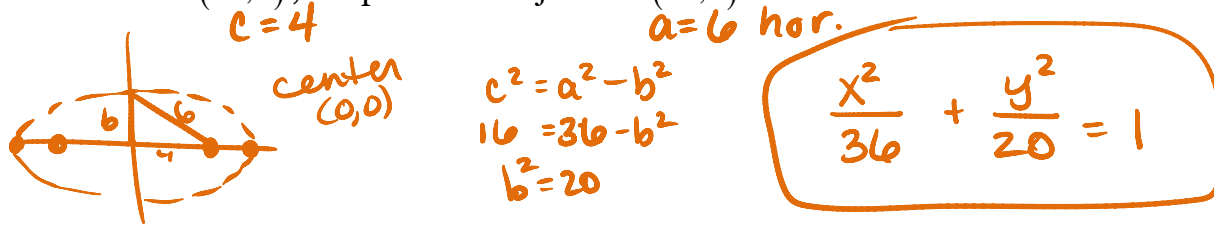
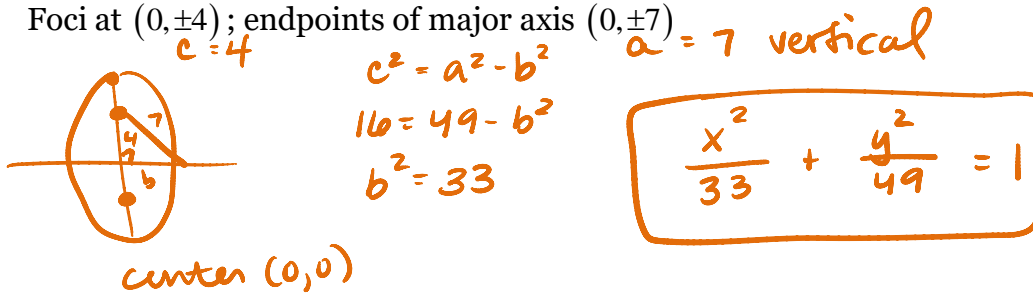


Write an equation in general form for each ellipse.

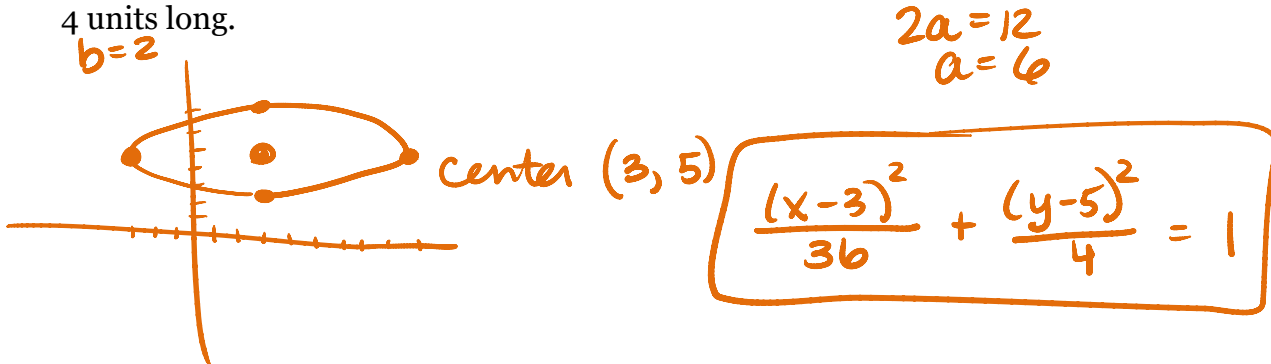
1. Foci at $(\pm 4, 0)$; endpoints of major axis $(\pm 6, 0)$



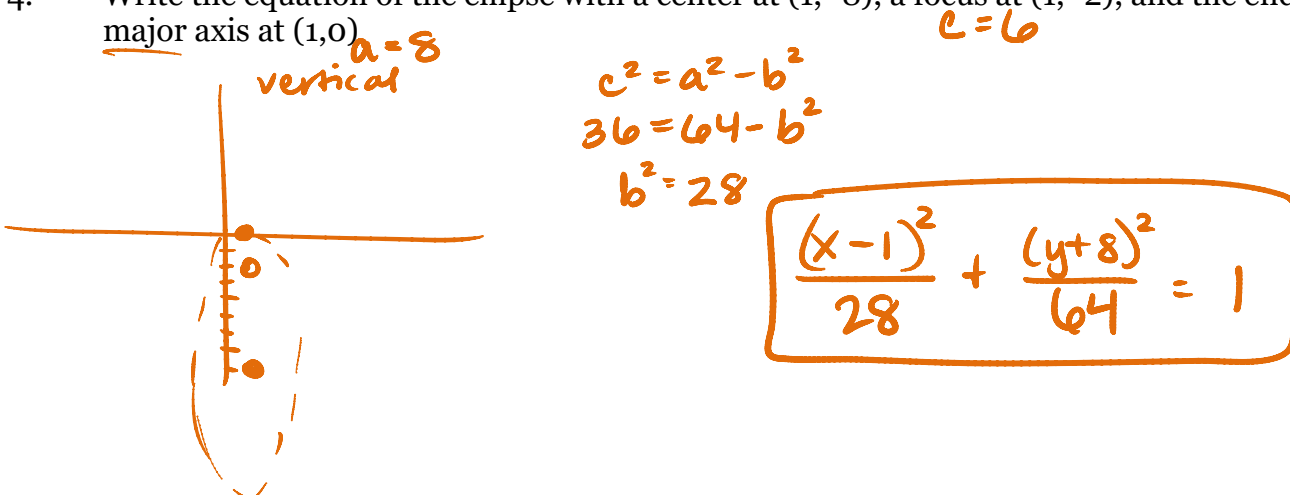
2. Foci at $(0, \pm 4)$; endpoints of major axis $(0, \pm 7)$



3. Write the equation of the ellipse with a major axis from $(-3, 5)$ to $(9, 5)$ and a minor axis that is 4 units long.



4. Write the equation of the ellipse with a center at $(1, -8)$, a focus at $(1, -2)$, and the end of the major axis at $(1, 0)$



Transform each of the following equations into general form of an ellipse and then graph the ellipse. Then find the distance from the center to the focus point.

5. $4x^2 + 9y^2 - 16x + 90y + 205 = 0$

$$\frac{25 \times 9}{225}$$

$$\frac{4x^2 - 16x + 9y^2 + 90y = -205}{4(x^2 - 4x + 4) + 9(y^2 + 10y + 25) = -205 + 16 + 225}$$

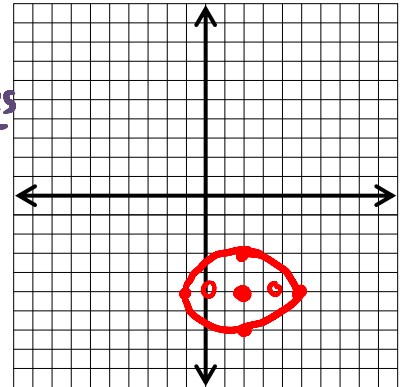
$$\frac{4(x-2)^2}{36} + \frac{9(y+5)^2}{36} = \frac{36}{36}$$

$$\frac{(x-2)^2}{9} + \frac{(y+5)^2}{4} = 1$$

center (2, -5)
a = 3 hor.
b = 2

$$c = \sqrt{5}$$

$$\text{foci } (2 \pm \sqrt{5}, -5)$$



6. $4x^2 + 36y^2 + 40x - 288y + 532 = 0$

$$\frac{4x^2 + 40x + 36y^2 - 288y = -532}{4(x^2 + 10x + 25) + 36(y^2 - 8y + 16) = -532 + 100 + 576}$$

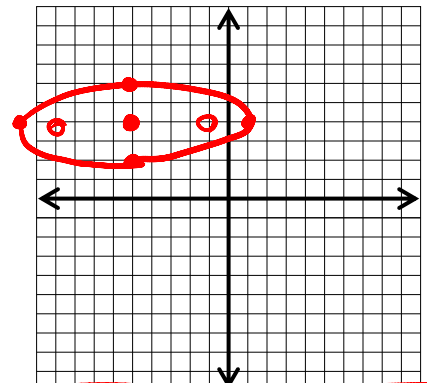
$$\frac{4(x+5)^2}{144} + \frac{36(y-4)^2}{144} = \frac{144}{144}$$

$$\frac{(x+5)^2}{36} + \frac{(y-4)^2}{4} = 1$$

center (-5, 4)
a = 6 hor.
b = 2

$$c = \sqrt{32}$$

$$\text{foci } (-5 \pm \sqrt{32}, 4)$$



7. $49x^2 + 16y^2 + 98x - 64y - 671 = 0$

$$\frac{49x^2 + 98x + 16y^2 - 64y = 671}{49(x^2 + 2x + 1) + 16(y^2 - 4y + 4) = 671 + 49 + 64}$$

$$\frac{49(x+1)^2}{784} + \frac{16(y-2)^2}{784} = \frac{784}{784}$$

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

center (-1, 2)
a = 7 vert.
b = 4

$$c = \sqrt{33}$$

$$\text{foci } (-1, 2 \pm \sqrt{33})$$

