

✓ Find the center and radius of the circle:

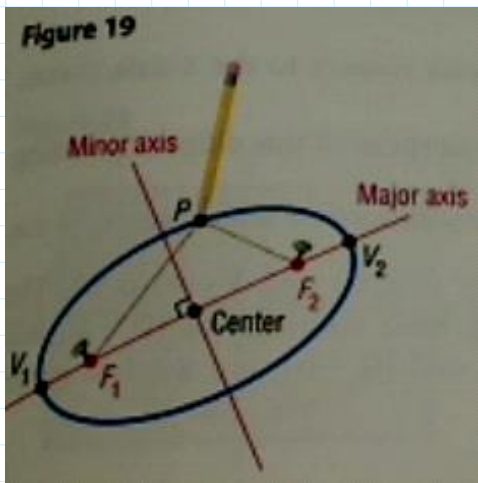
$$(x-h)^2 + (y-k)^2 = r^2$$

$$x^2 - 6x + y^2 + 8y + 9 = 0$$

$$(x^2 - 6x + \underline{9}) + y^2 + 8y + \underline{16} = -9 + 9 + 16$$

$$(x-3)^2 + (y+4)^2 = 16$$

$$C: (3, -4) \quad r = 4$$



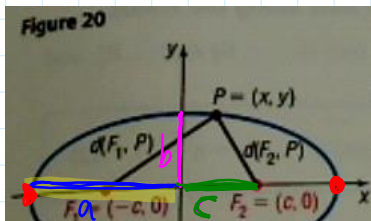
Circle $x^2 + y^2 = 16$

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

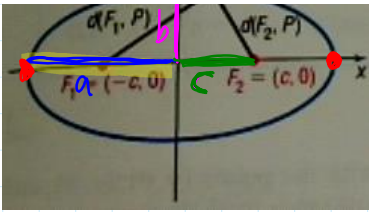
$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

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

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

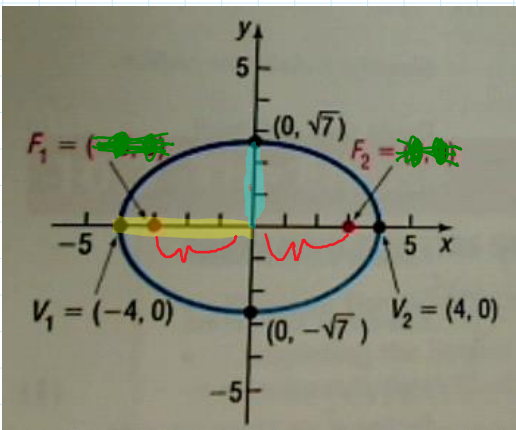


~~Center:~~
~~Foci:~~
~~Vertices:~~



Foci: ~~Vertices:~~

Find the Equation and analyze the ellipse:



$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

$$\frac{x^2}{4^2} + \frac{y^2}{(\sqrt{7})^2} = 1$$

$$\boxed{\frac{x^2}{16} + \frac{y^2}{7} = 1}$$

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

$$c^2 = 16 - 7 = 9$$

$$c = \sqrt{9} = 3$$

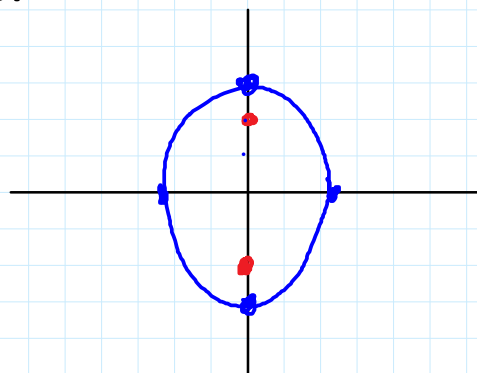
Analyze the ellipse:

$$\frac{9x^2}{45} + \frac{5y^2}{45} = \frac{45}{45}$$

$$\frac{x^2}{5} + \frac{y^2}{9} = 1$$

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

$$\sqrt{5} \approx 2.2$$

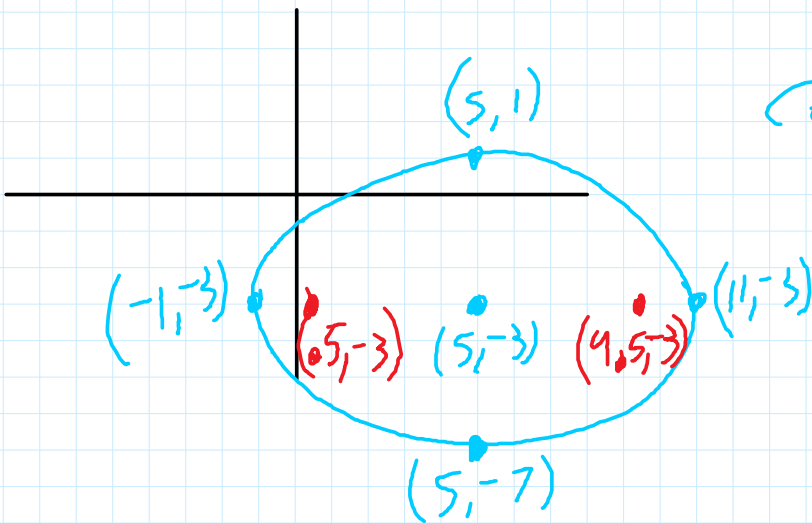


$$c^2 = 9 - 5 = 4$$

$$c = 2$$

$$\frac{(X-5)^2}{36} + \frac{(Y+3)^2}{16} = 1$$

$$\frac{(X-5)^2}{6^2} + \frac{(Y+3)^2}{4^2} = 1$$



Center: $5, -3$

$$c^2 = 6^2 - 4^2$$

$$c^2 = 20$$

$$c = \sqrt{20} \approx 4.5$$