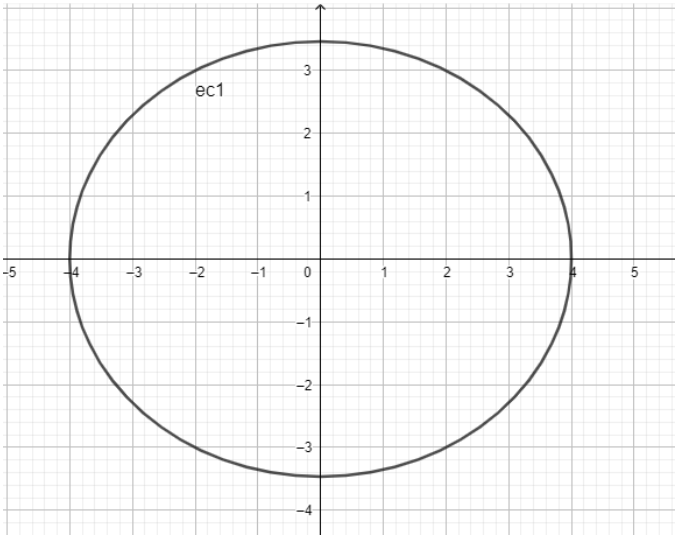
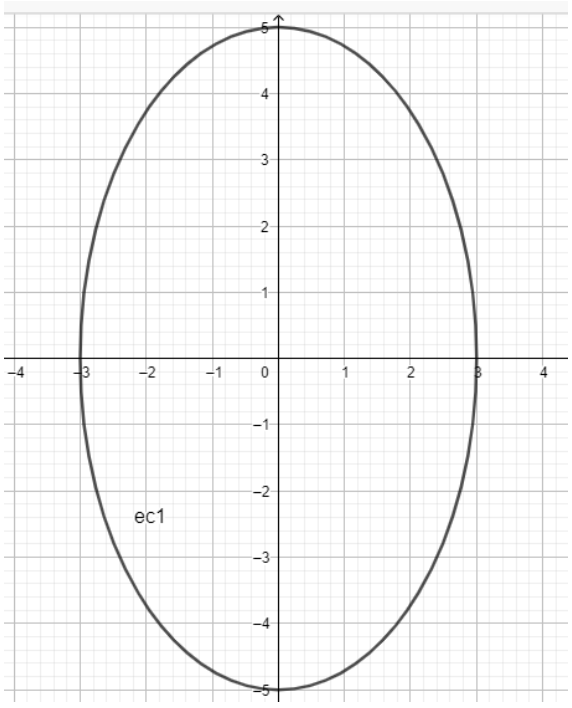
1. A)

$$\frac{x^2}{16} + \frac{y^2}{12} = 1$$



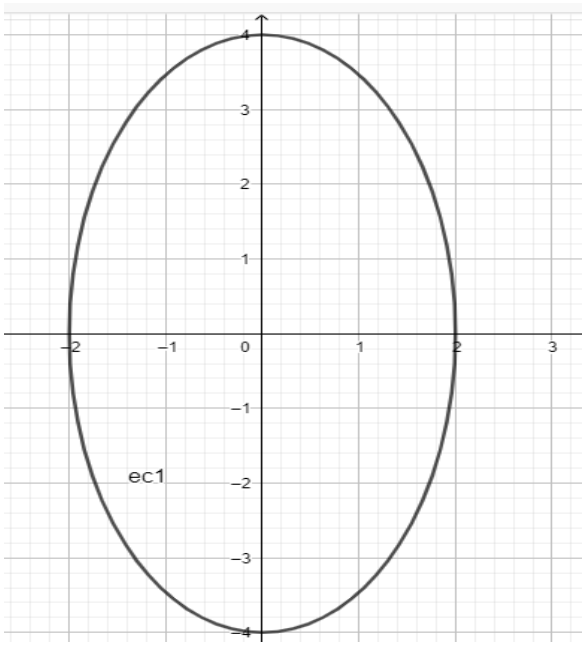
B)

$$\frac{x^2}{9} + \frac{y^2}{25} = 1$$



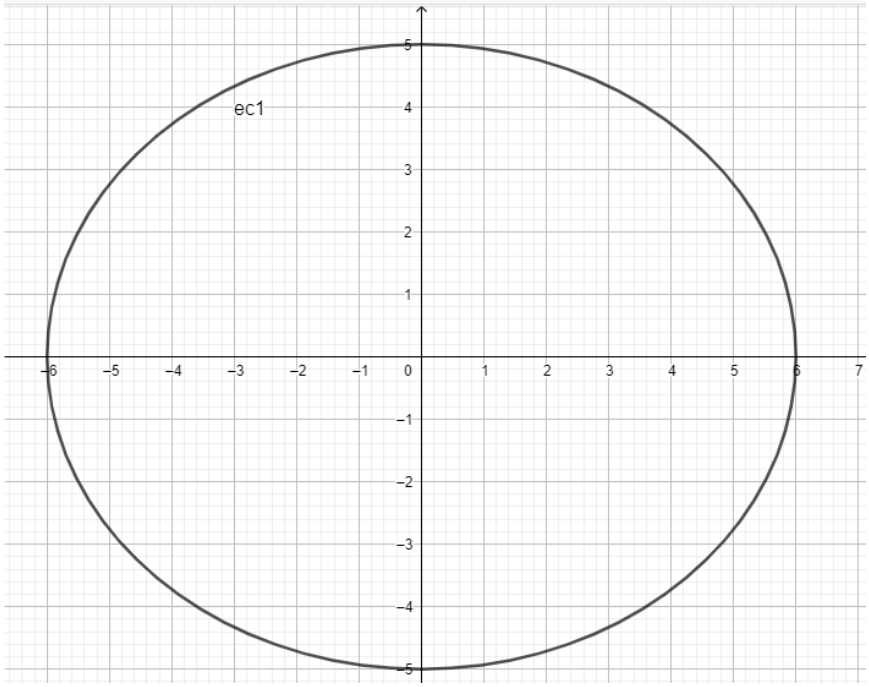
c)

$$\frac{x^2}{4}+\frac{y^2}{16}=1$$



d)

$$\frac{x^2}{36}+\frac{y^2}{25}=1$$



2) a.

$$\frac{(x-2)^2}{16}+\frac{(y-3)^2}{9}=1 \rightarrow \frac{(x-2)^2}{4^2}+\frac{(y-3)^2}{3^2}=1$$

Centro: (2,3)

Vértices:

$(2+4,3),(2-4,3)$

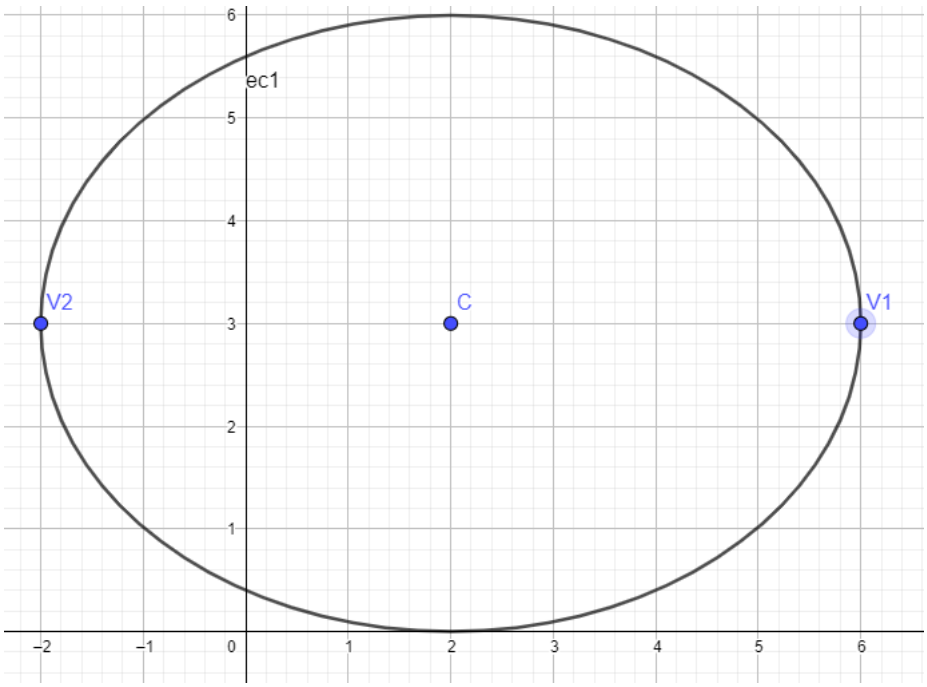
Simplificar

$(6,3),(-2,3)$

Focos:

$c=\sqrt{4^2-3^2}: \quad \sqrt{7}$

$(2+\sqrt{7},3),(2-\sqrt{7},3)$



b)

$$\frac{(x-3)^2}{64}+\frac{(y-7)^2}{9}=1 \rightarrow \frac{(x-3)^2}{8^2}+\frac{(y-7)^2}{3^2}=1$$

Centro: (3,7)

Vértices:

$(3+8,7),(3-8,7)$

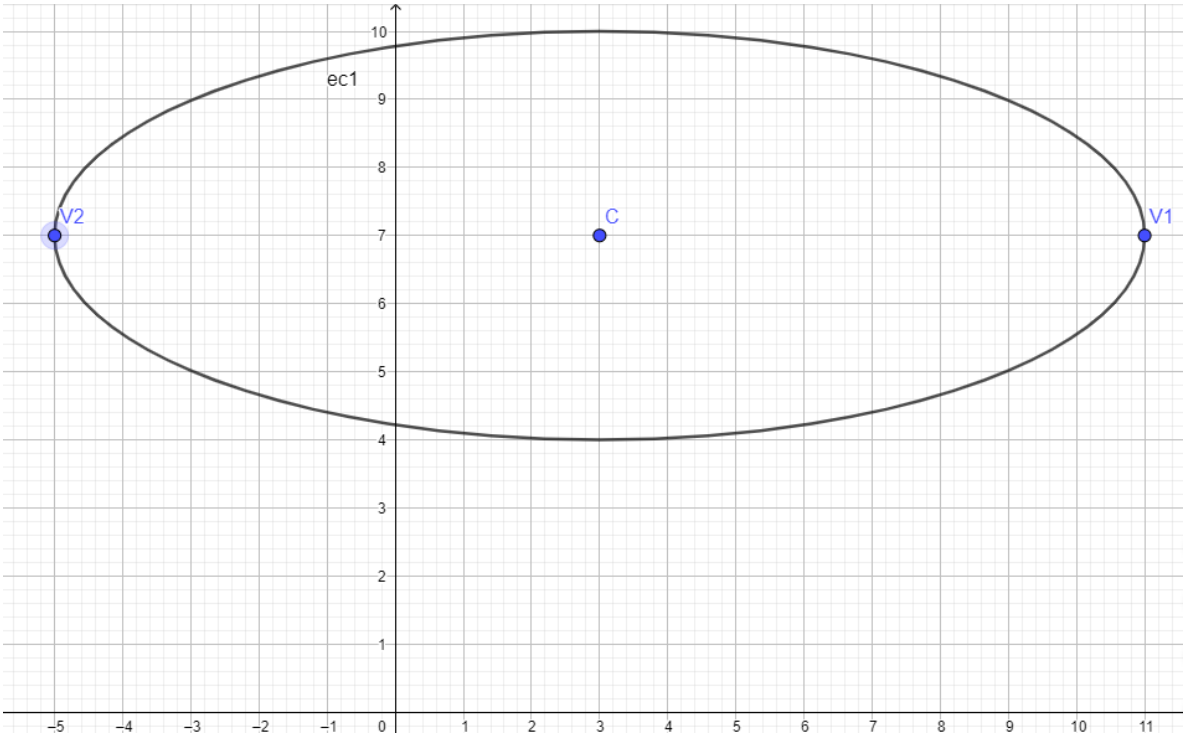
Simplificar

$(11,7),(-5,7)$

Focos:

$c=\sqrt{8^2-3^2}: \quad \sqrt{55}$

$(3+\sqrt{55},7),(3-\sqrt{55},7)$



C.

$$\frac{(x+2)^2}{16}+\frac{(y-3)^2}{25}=1 \rightarrow \frac{(x+2)^2}{4^2}+\frac{(y-3)^2}{5^2}=1$$

Centro: (-2 ,3)

Vértices:

$(-2, 3+5), (-2, 3-5)$

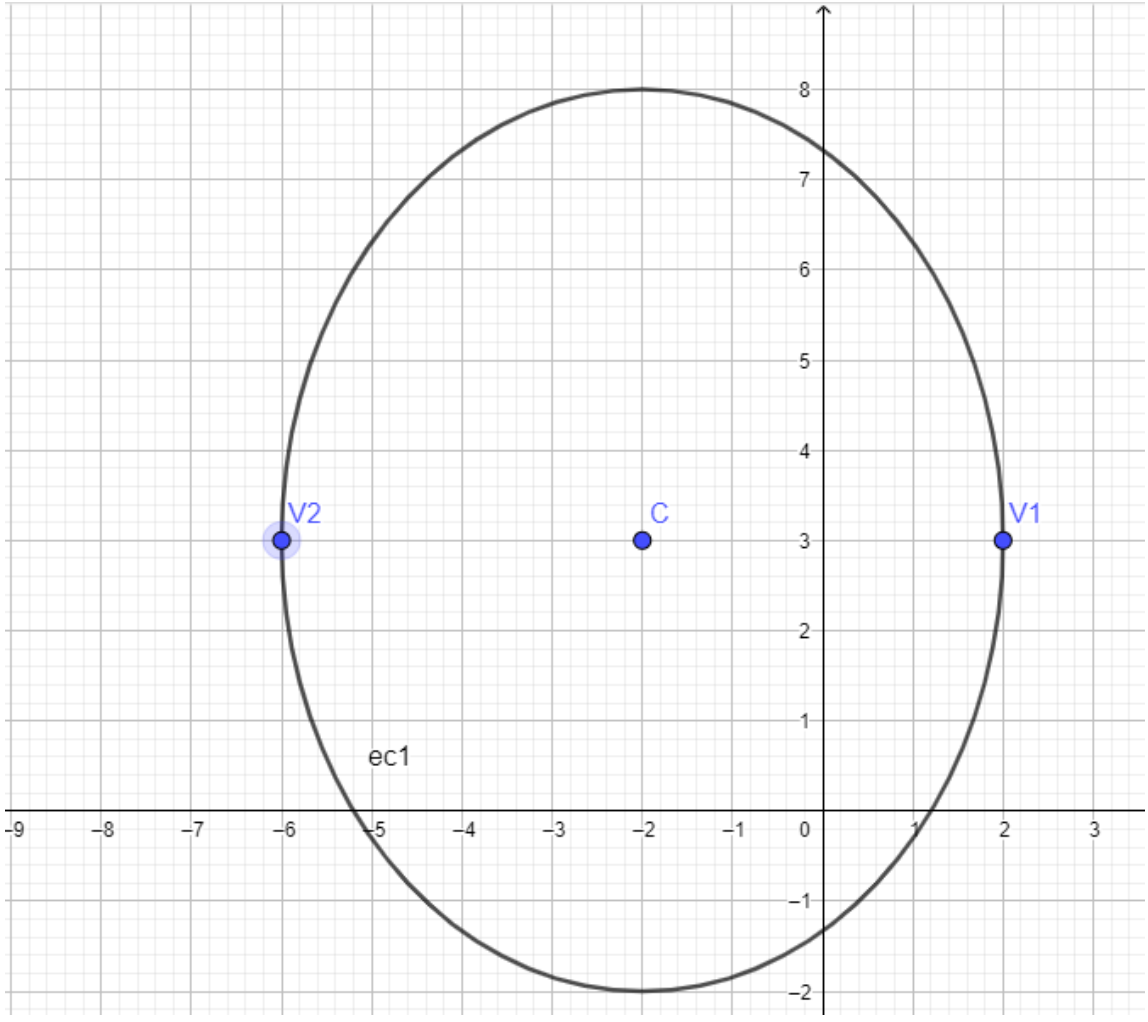
Simplificar

$(-2, 8), (-2, -2)$

Focos:

$c=\sqrt{5^2-4^2}: \quad 3$

$(-2, 3+3), (-2, 3-3)$



d.

$$\frac{(x-3)^2}{16}+\frac{(y+1)^2}{4}=1 \rightarrow \frac{(x-3)^2}{4^2}+\frac{(y+1)^2}{2^2}=1$$

Centro: (3, -1)

Vértices:

$(3+4,\ -1), (3-4,\ -1)$

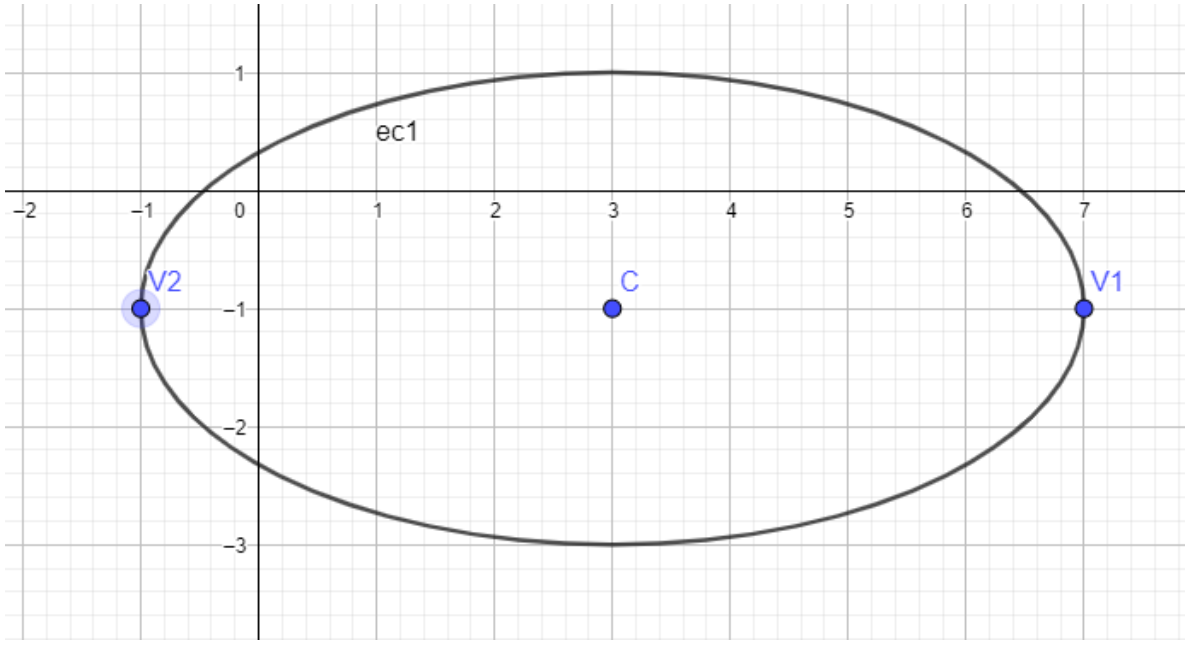
Simplificar

$(7,\ -1), (-1,\ -1)$

Focos:

$c=\sqrt{4^2-2^2}:\ \ 2\sqrt{3}$

$(3+2\sqrt{3},\ -1), (3-2\sqrt{3},\ -1)$



3) a.

C(0,0) F(4,0) A(6,0)

$$c = 4$$
$$a = 6$$

$$b = \sqrt{a^2 - c^2}$$

$$b = \sqrt{6^2 - 4^2} = \sqrt{36 - 16} = \sqrt{20}$$

Ecuación para elipse horizontal:

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

$$\frac{x^2}{36} + \frac{y^2}{20} = 1$$

b.

C(0,0) F(0,4) A(0,5)

$$c = 4$$
$$a = 5$$

$$b = \sqrt{a^2 - c^2}$$

$$b = \sqrt{5^2 - 4^2} = \sqrt{25 - 16} = \sqrt{9} = 3$$

Ecuación para elipse vertical:

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

$$\frac{x^2}{9} + \frac{y^2}{25} = 1$$

c.

C(1,-1) F(1, 2) A(1, 4)

$$c = 2 - (-1) = 3$$
$$a = 4 - (-1) = 5$$

$$h = 1, k = -1$$

$$b = \sqrt{a^2 - c^2}$$

$$b = \sqrt{a^2 - c^2}$$

$$b = \sqrt{5^2 - 3^2} = \sqrt{25 - 9} = \sqrt{16} = 4$$

Ecuación para elipse vertical:

$$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=\ 1$$

$$\frac{(x-1)^2}{16}+\frac{(y+1)^2}{25}=\ 1$$

d.

C(-3,2) F(-1,2) A(2,2)

$$c=|-1-(-3)|=2$$
$$a=|2-(-3)|=5$$

$$h=-3, k=2$$

$$b=\sqrt{a^2-c^2}$$

$$b=\sqrt{5^2-2^2}=\sqrt{25-4}=\sqrt{21}$$

Ecuación para elipse horizontal:

$$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=\ 1$$

$$\frac{(x+3)^2}{25}+\frac{(y-2)^2}{21}=\ 1$$

4) a.

V1(-2, 5) V2(-2,-1) F1(-2, 4) F2(-2,0)

$$Centro\text{: }\left(-2\ ,\frac{5-1}{2}\right)=(-2,2)=(h,k)$$

$$h=-2, k=2$$

$$c=|0-2|=2$$
$$a=|5-2|=3$$

$$b=\sqrt{a^2-c^2}$$

$$b=\sqrt{3^2-2^2}=\sqrt{9-4}=\sqrt{5}$$

Ecuación para elipse vertical:

$$\frac{(x-h)^2}{b^2}+\frac{(y-k)^2}{a^2}=\ 1$$

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

b.

V1(-4,0) V2(4,0) F1(-3,0) F2(3,0)

$$Centro: \left(\frac{3-3}{2}, 0\right) = (0,0) = (h,k)$$

$$h = 0, k = 0$$

$$c = 3$$
$$a = 4$$

$$b = \sqrt{a^2 - c^2}$$

$$b = \sqrt{4^2 - 3^2} = \sqrt{16 - 9} = \sqrt{7}$$

Ecuación para elipse horizontal:

$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$$

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