

ELLISSE

Proprietà e grafico



M3039

IL GRAFICO

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

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

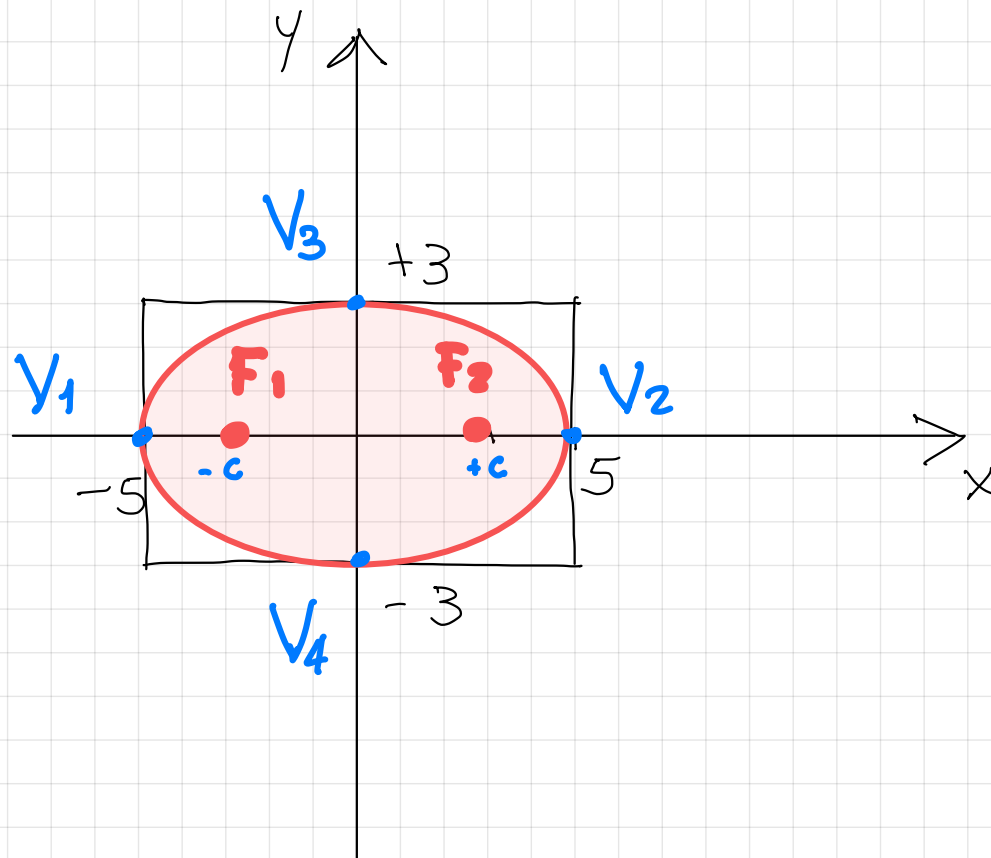
$$a^2 = 25 \rightarrow a = \pm 5$$
$$b^2 = 9 \rightarrow b = \pm 3$$

a e b SEMIASSI

V VERTICI

$$V_1(-5; 0) \quad V_2(5; 0)$$

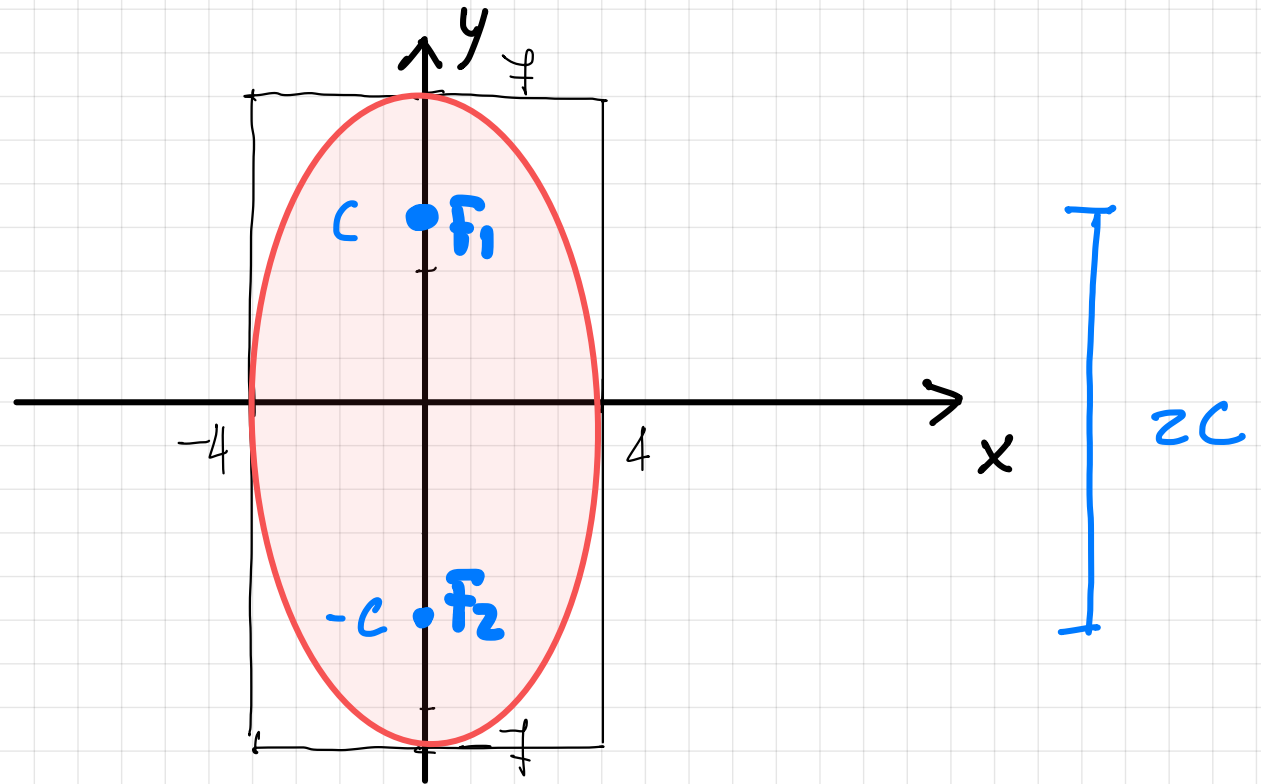
$$V_3(0; 3) \quad V_4(0; -3)$$



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

$$a^2 = 16 \rightarrow a = \pm 4$$

$$b^2 = 49 \rightarrow b = \pm 7$$



1 FUOCHI

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

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

c^2

DEVE ESSERE POSITIVO

Grande piccolo

$$\rightarrow c^2 = b^2 - a^2 \rightarrow \text{ELLISSE VERT.}$$

$$\rightarrow c^2 = a^2 - b^2 \rightarrow \text{ELLISSE ORI.}$$

2C SI CHIAMA DISTANZA FOCALE

$$F_1(-c; 0)$$

$$F_2(c; 0)$$

ELLISSE ORIZZONTALE

$$F_1(0; c)$$

$$F_2(0; -c)$$

ELLISSE VERTICALE

ESEMPIO : $\frac{x^2}{100} + \frac{y^2}{49} = 1$

$c?$ $c^2 = 100 - 49 = 51$
 $c = \sqrt{51}$

$$F_1(\sqrt{51}; 0) ; F_2(+\sqrt{51}; 0)$$

ECCENTRICITA'

$$e = \frac{\text{distanza focale}}{\text{ASSE maggiore}} = \frac{\cancel{c}}{\cancel{a}} = \frac{c}{a}$$

$$0 \leq e < 1$$

0 circonferenza e quasi circonferenza
1 segmento e schiacciata

$$x^2 = \frac{16 - y^2}{6}$$

$$\frac{6x^2}{6} = \frac{16 - y^2}{6}$$

$$\frac{x^2}{\frac{8}{3}} + \frac{y^2}{16} = 1$$

$$a^2 = \frac{8}{3} \quad b^2 = 16$$

$$6x^2 + y^2 = 16$$

$$\frac{6}{16}x^2 + \frac{1}{16}y^2 = 1$$

$$\frac{x^2}{\frac{16}{6}} + \frac{y^2}{16} = 1$$