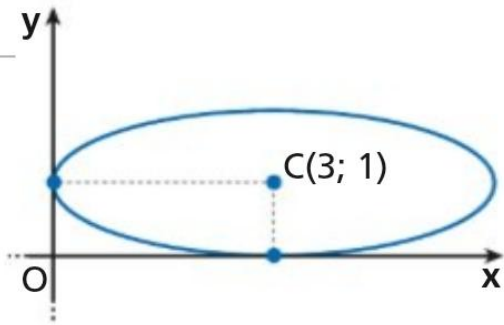


219



$$[x^2 + 9y^2 - 6x - 18y + 9 = 0]$$

$$a = 3 \quad b = 1 \quad a = 3 \quad b = 1$$

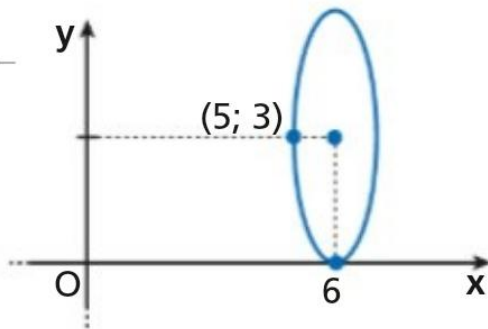
$$\frac{(x-3)^2}{3^2} + \frac{(y-1)^2}{1^2} = 1$$

$$\frac{x^2 + 9 - 6x}{9} + \frac{y^2 + 1 - 2y}{1} = 1$$

$$x^2 + 9 - 6x + y^2 - 18y = 0$$

$$x^2 + 9y^2 - 6x - 18y + 9 = 0$$

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$$[9x^2 + y^2 - 108x - 6y + 324 = 0]$$

$$a = 6 \quad b = 3$$

$$a = 1 \quad b = 3$$

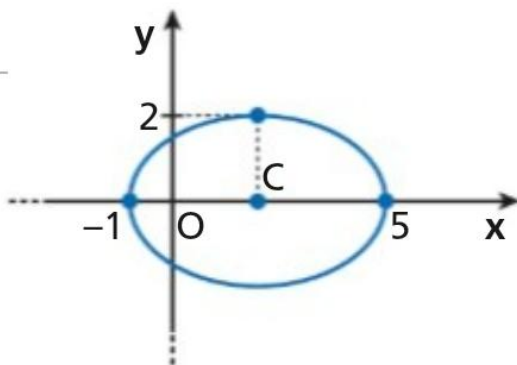
$$\frac{(x-6)^2}{6^2} + \frac{(y-3)^2}{3^2} = 1$$

$$9(x^2 + 36 - 12x) + y^2 + 9 - 6y - 9 = 0$$

$$9x^2 + 324 - 108x + y^2 + 9 - 6y - 9 = 0$$

$$9x^2 + y^2 - 108x - 6y + 324 = 0$$

221



$$[64x^2 + 144y^2 - 256x - 320 = 0]$$

$$x_c = \frac{5-1}{2} = \frac{4}{2} = 2 = a \quad b = 0$$

$$a = 3 \quad b = 2$$

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

$$4(x^2 + 4 - 4x) + 9y^2 - 36 = 0$$

$$4x^2 + 16 - 16x + 9y^2 - 36 = 0$$

$$4x^2 + 9y^2 - 16x - 20 = 0$$

Trova per quali valori di  $k$  l'equazione  $x^2 + 4y^2 - 6x + 2y + k = 0$  rappresenta un'ellisse non degenera.

$$\left[ k < \frac{37}{4} \right]$$

$$\underbrace{x^2 - 6x + 9 - 9}_{(x-3)^2} + \underbrace{4y^2 + 2y + \frac{1}{4} - \frac{1}{4}}_{\left(2y + \frac{1}{2}\right)^2} + k = 0$$

$$(x-3)^2 + \left(2y + \frac{1}{2}\right)^2 = 9 + \frac{1}{4} - k$$

$$(x-3)^2 + \left(2y + \frac{1}{2}\right)^2 = \underbrace{\frac{37}{4} - k}$$

$$\frac{37}{4} - k > 0$$

$$\Downarrow$$

$$\boxed{k < \frac{37}{4}}$$

affinché sia  
un'ellisse non  
degenera ( $a > 0$   
è degenera,  $a < 0$   
è l'ins. vuoto)