

MAT212 28-08-2025

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FUNCIÓN CUADRÁTICA

$$x \longrightarrow x^2$$

$$5 \longrightarrow 25$$

$$6 \longrightarrow 36$$

$$-4 \longrightarrow 16$$

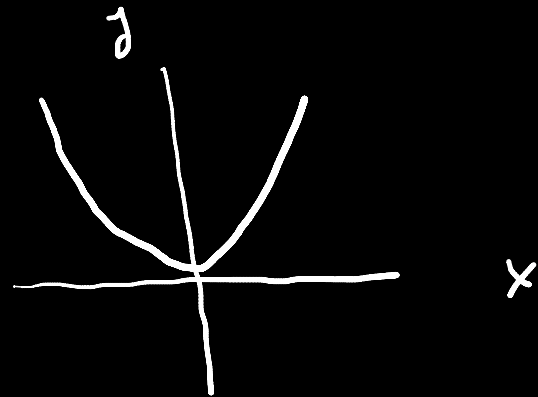
$$-7 \longrightarrow 49$$

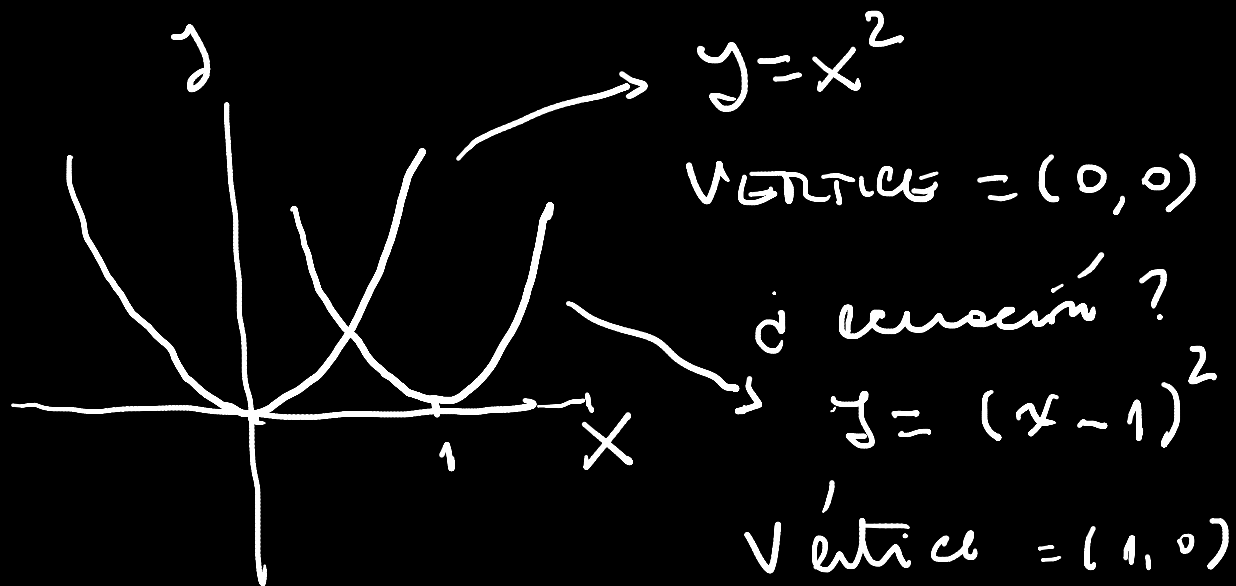
$$-5 \longrightarrow 25$$

$$0.1 \longrightarrow 0.01$$

$$f(x) = x^2 ; y = x^2$$

$$f(5) = 25 ; y = 25$$





$y = x^2 + 1$ X No!

$y = 1^2 = 1$

$y = x^2 - 1$ X No!

$y = x^2 - x$ X
 $x = 0.1$
 $0.01 - 0.1 < 0$ y

$$y = (x+2)^2$$

$$y = x^2$$

$$x=3; y=9$$

$$y = (x-1)^2$$

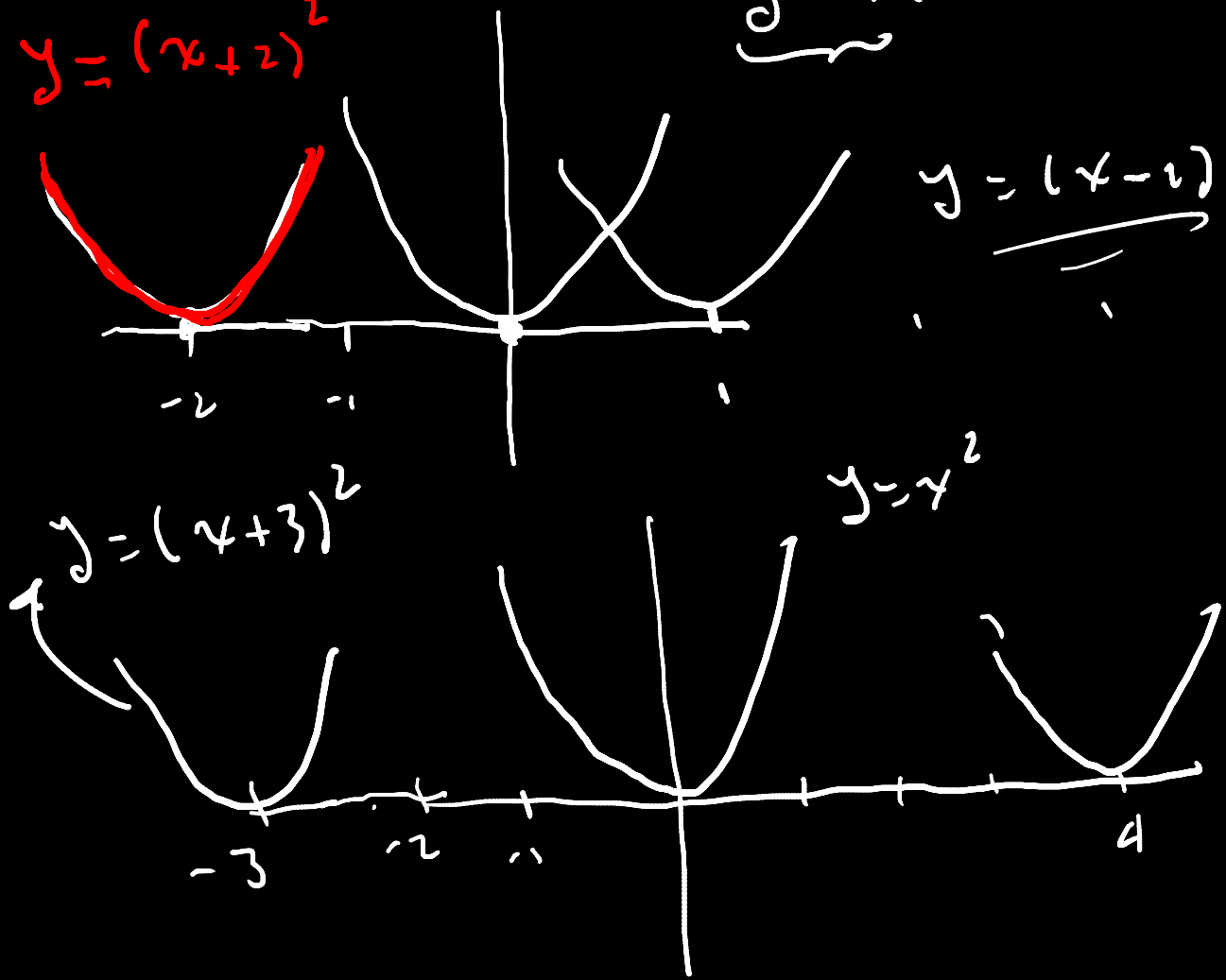
$$x=4; y=9$$

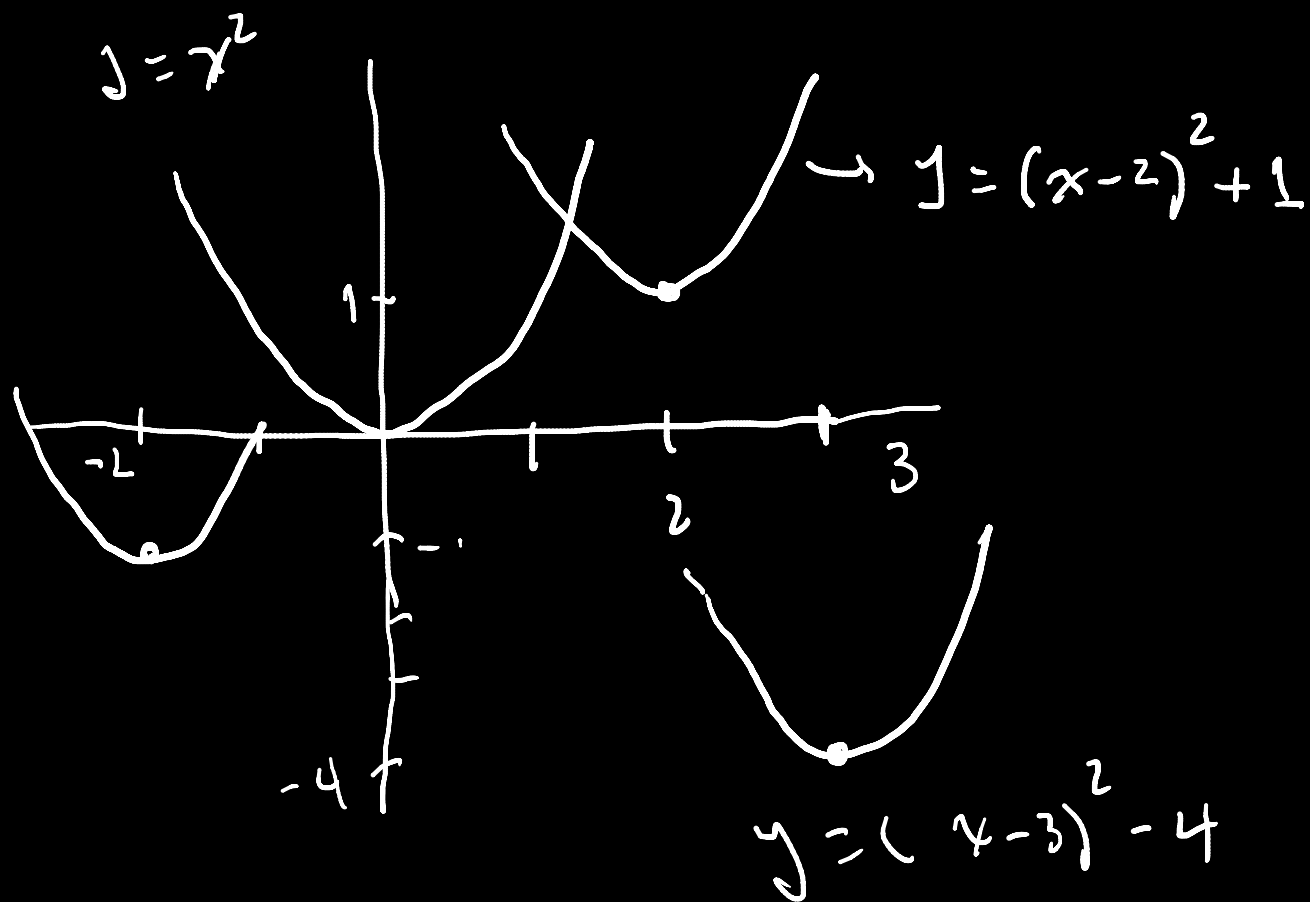
4

$$y = (x+3)^2$$

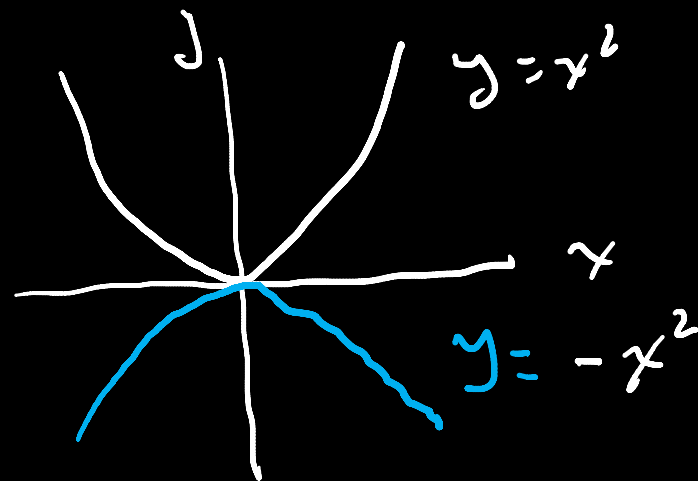
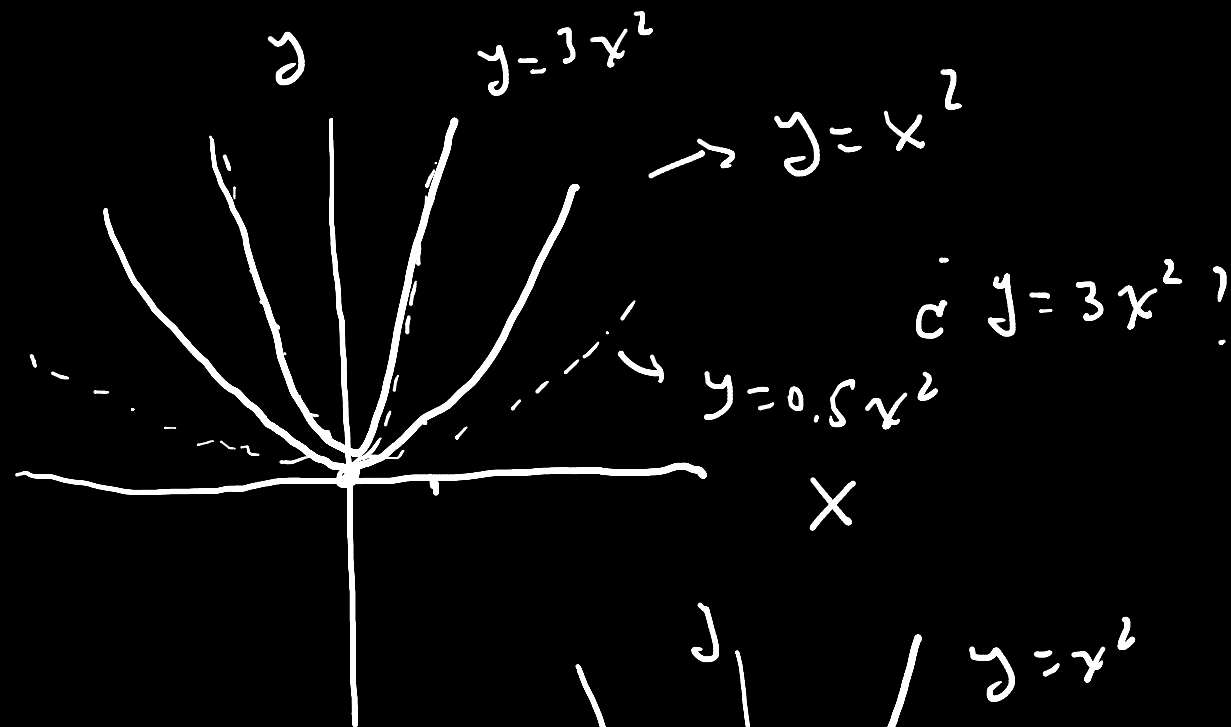
$$y = x^2$$

$$y = (x-4)^2$$

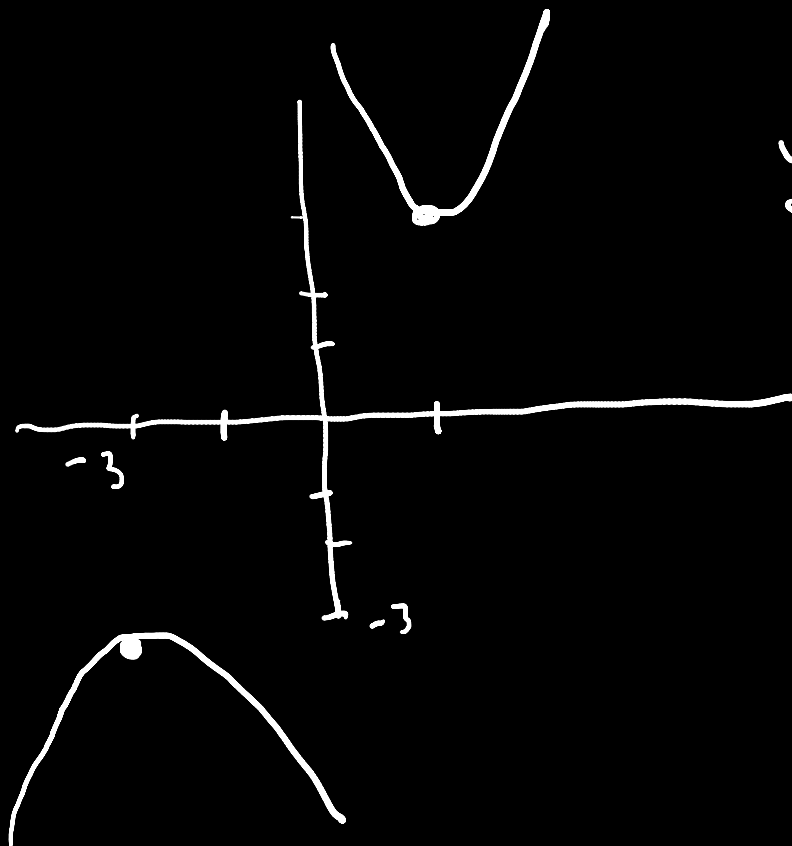




Then: $y = (x+2)^2 - 1$



$$y = 2(x-1)^2 + 3$$



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

Conclusion $y = k(x-a)^2 + b$

Vertex $= (a, b)$

$k > 0$ 

$k < 0$ 

$$y = 4(x+5)^2 + 2$$

~~$$y = 2x^2 + 4x + 3$$~~

$$y = 2(x^2 + 2x + 1) + 3$$

$$y = 2x^2 + 4x + 2 + 3$$

$$\boxed{y = 2x^2 + 4x + 5}$$

$$y - 5 = 2x^2 + 4x$$

$$y - 5 = 2(x^2 + 2x)$$

$$\frac{y-5}{2} = \underbrace{x^2 + 2x}$$

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

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

$$y - 5 = 2(x+1)^2 - 2$$

$$y = 2(x+1)^2 - 2 + 5$$

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

$$V = (-1, 3) \quad 2 > 0$$

$$\frac{h}{2} = a + b$$

$$h = 2a + 2b$$

$$y = 3(x-1)^2 + 5$$

$$y = Ax^2 + Bx + C$$

