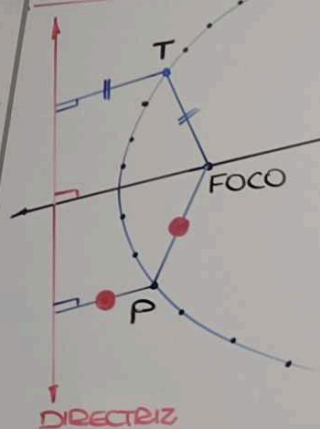


LA PARÁBOLA

DEFINICIÓN:



ELEMENTOS:

DIRECTRIZ

$2p$

$2p$

$2p$

$2p$

$2p$

$2p$

$2p$

$2p$

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$2p$

• VÉRTICE: V

• FOCO: F

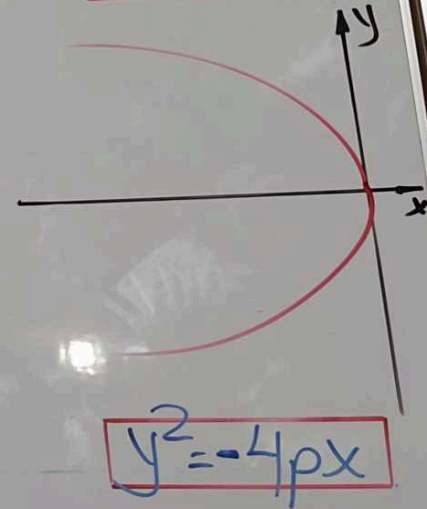
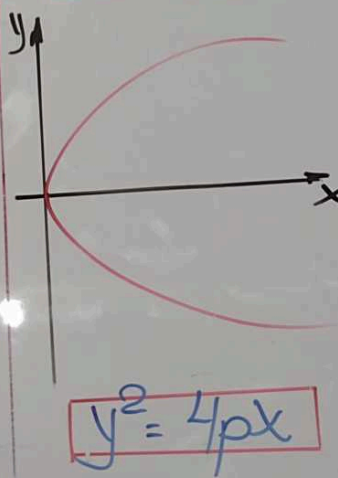
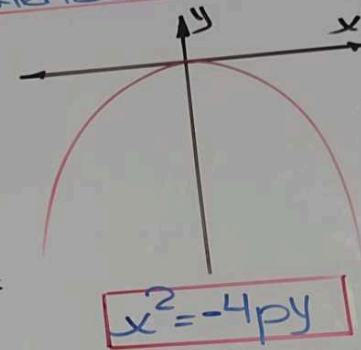
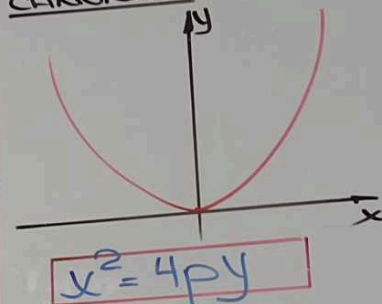
• CUERDA: \overline{AB}

• CUERDA FOCAL: \overline{MN}

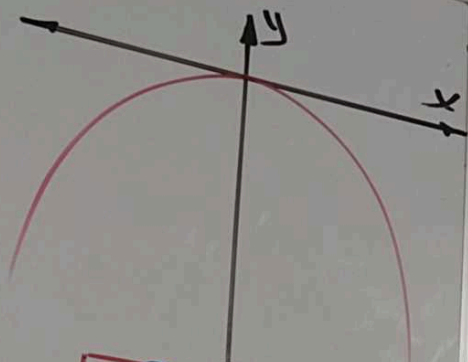
• LADO RECTO: $\overline{LR} = |4p|$

• PARÁMETRO: p

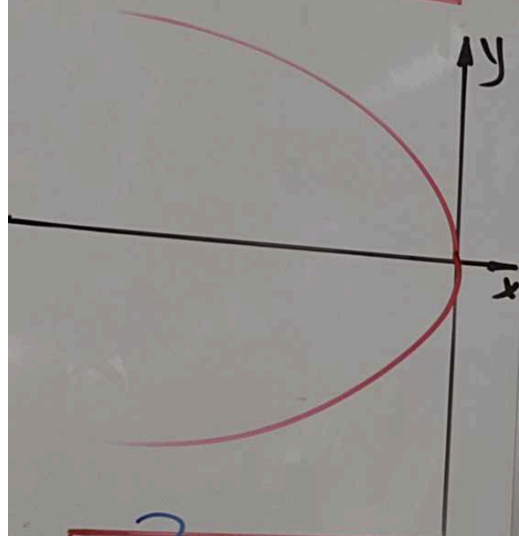
ECUACIONES DE LA PARÁBOLA CANÓNICA V(0;0)



PARABOLA

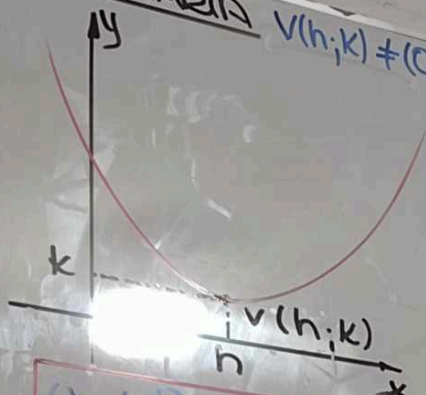


$$x^2 = -4py$$

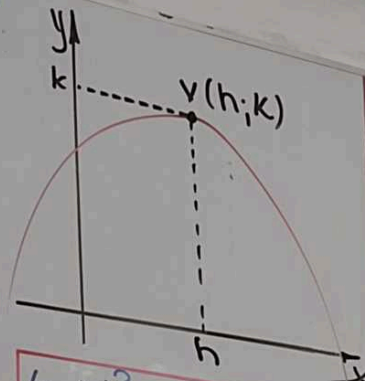


$$y^2 = -4px$$

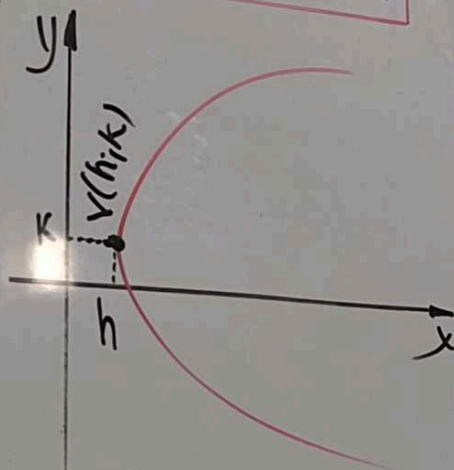
ORDINARIA $V(h;k) \neq (0,0)$



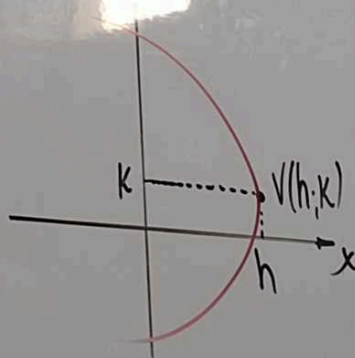
$$(x-h)^2 = 4p(y-k)$$



$$(x-h)^2 = -4p(y-k)$$



$$(y-k)^2 = 4p(x-h)$$



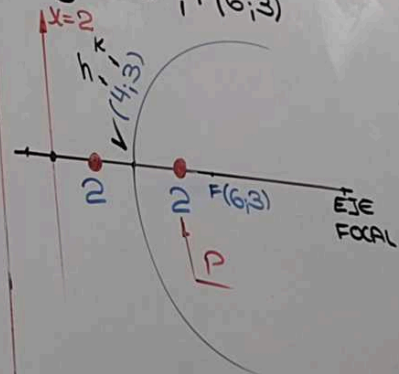
$$(y-k)^2 = -4p(x-h)$$

GENERAL

$$U: x^2 + Bx + Cy + D = 0$$

$$S: y^2 + By + Cx + D = 0$$

$$① L_D: x=2; F(6;3)$$



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

$$(y-3)^2 = 8(x-4)$$

OBS:
 $x=k$: RECTA VERTICAL
 $y=k$: RECTA HORIZONTAL

LA PARÁBOLA

$$\textcircled{3} \quad x^2 - 6x + 9 + 8y - 23 = 0 + 9$$

$$(x-3)^2 = \frac{-8}{4p}(y-4)$$

$$\rightarrow LR = |-8| = 8f$$

$$\textcircled{4} \quad 3y^2 - 5x - 18y + 37 = 0$$

$$3(y^2 - 6y + 9 - 9) = 5x - 37$$

$$(y-3)^2$$

$$3(y-3)^2 - 27 = 5x - 37$$

$$(y-3)^2 = \frac{5}{3}(x-2)$$

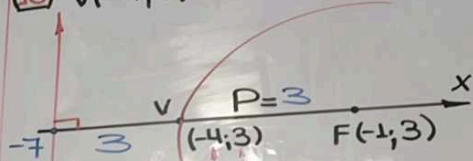
$$V = (2; 3)$$

$\uparrow \quad \uparrow$
 $h \quad k$

$$\rightarrow 4p = \frac{5}{3}$$

$$\boxed{12p = 5}$$

$$\textcircled{10} \quad V(-4; 3) \quad F(-1; 3)$$



$$\mathcal{P}: (y-3)^2 = 4p(x+4)$$

$$\circ \circ \mathcal{P}: (y-3)^2 = 12(x+4)$$

$\textcircled{12}$ EJE FOCAL // EJE \hat{X} :

$$\mathcal{P}_8 \quad y^2 + By + Cx + D = 0$$

$$(0; 0) \in \mathcal{P}: 0^2 + B(0) + C(0) + D = 0$$

$$\boxed{D = 0}$$

$$(\tilde{x}; \tilde{y}) = (8; -4) \in \mathcal{P}: (-4)^2 + B(-4) + C(8) = 0$$

$$16 - 4B + 8C = 0$$

$$4 + 2C = B \rightarrow \boxed{B = 2}$$

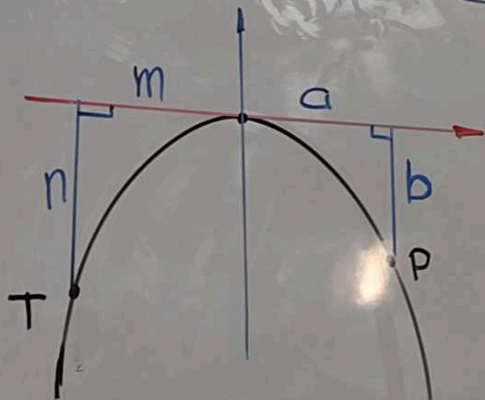
$$(\tilde{x}; \tilde{y}) = (3; 1) \in \mathcal{P}: 1^2 + B(1) + C(3) = 0$$

$$1 + 4 + 2C + 3C = 0$$

$$\boxed{C = -1}$$

$$\circ \circ \mathcal{P}: y^2 + 2y - x = 0$$

14



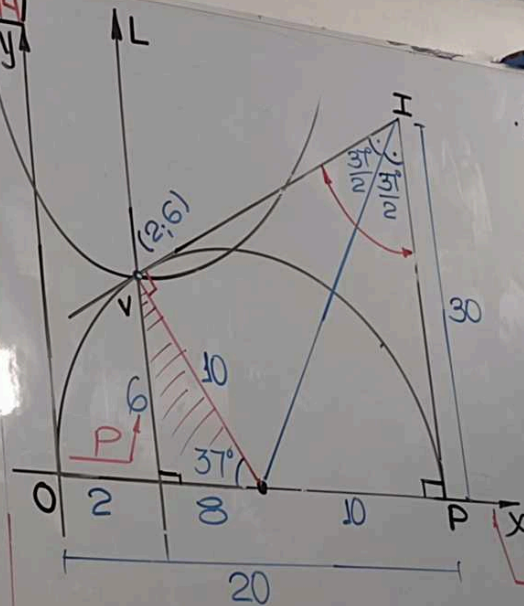
$$\frac{a^2}{b} = \frac{m^2}{n}$$

$$\frac{4^2}{12-h} = \frac{8^2}{12}$$

$$3 = 12-h$$

$$h = 9$$

14



$$\frac{PI}{3} = \frac{PI}{2} \rightarrow PI = 30$$

DIRECTOR

$$(x-2)^2 = 4(6)(y-6)$$

$$(x-2)^2 = 24(y-6)$$

$$\frac{5}{2} + \frac{5}{2} = 5$$