

$$ax + by + c = 0$$

$$m_H = -\frac{a}{b}$$

$$m_S = \frac{b}{a}$$

$$S: y = \frac{b}{a}x$$

$$H = \begin{cases} R & \left\{ \begin{array}{l} ax + by + c = 0 \\ y = \frac{b}{a}x \end{array} \right. \\ S & \end{cases}$$

$$ax + b \cdot \frac{b}{a}x + c = 0$$

$$ax + \frac{b^2}{a}x + c = 0$$

$$\times \left(a + \frac{b^2}{a} \right) = -c$$

$$\times \left(\frac{a^2 + b^2}{a} \right) = -c$$

$$x = - \frac{c \cdot a}{a^2 + b^2} = \frac{-ac}{a^2 + b^2}$$

$$y = \frac{b}{a} \left(-\frac{ac}{a^2 + b^2} \right) = \frac{-bc}{a^2 + b^2}$$

$$\overline{OH} = \sqrt{\frac{a^2 c^2}{(a^2 + b^2)^2} + \frac{b^2 c^2}{(a^2 + b^2)^2}} = \sqrt{\frac{c^2 (a^2 + b^2)}{(a^2 + b^2)^2}}.$$

$$= \sqrt{\frac{c^2}{a^2+b^2}} = \frac{|c|}{\sqrt{a^2+b^2}}$$

$$2x-y-5=0 \quad d = \overline{PH} = \frac{|-5|}{\sqrt{4+1}} = \frac{5}{\sqrt{5}} = \sqrt{5}$$

TRASLAZIONE DI ASSI

$$\begin{cases} x = X + x_0 \\ y = Y + y_0 \end{cases}$$

$$\begin{cases} X = x - x_0 \\ Y = y - y_0 \end{cases}$$

$$\bar{v}^P = (x_0, y_0)$$

$$ax + by + c = 0$$

$$a(X+x_0) + b(Y+y_0) + c = 0$$

$$aX + bY + \underbrace{ax_0 + by_0 + c}_{=0} = 0$$

$$d = \overline{PH} = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2+b^2}}$$