

(b) Determinare l'immagine della retta $y = 2x - 1$.

$$f(x) = Ax + b \quad A = \begin{pmatrix} 3/2 & -1/2 \\ -5 & 1 \end{pmatrix} \quad b = \begin{pmatrix} 0 \\ 5 \end{pmatrix}$$

$$y = 2x - 1 \leadsto (5, 2 \cdot 5 - 1) = (P_0, -1) + \delta(1, 2)$$

$$\left\{ \begin{array}{l} v = (1, 2) \leadsto v' = Av = \begin{pmatrix} 3/2 - 2 \\ -5 + 2 \end{pmatrix} = \begin{pmatrix} 1/2 \\ -3 \end{pmatrix} \\ P_0 = (0, -1) \leadsto P_0' = \begin{pmatrix} 1/2 \\ -2 + 5 \end{pmatrix} = \begin{pmatrix} 1/2 \\ 3 \end{pmatrix} \end{array} \right.$$

$$y - y_0 = (x - x_0) \frac{b}{a}$$

$$y - 3 = \left(x - \frac{1}{2}\right) \frac{-3}{1/2} \quad y = -5x + 2 + 3 \quad y = -5x + 6$$