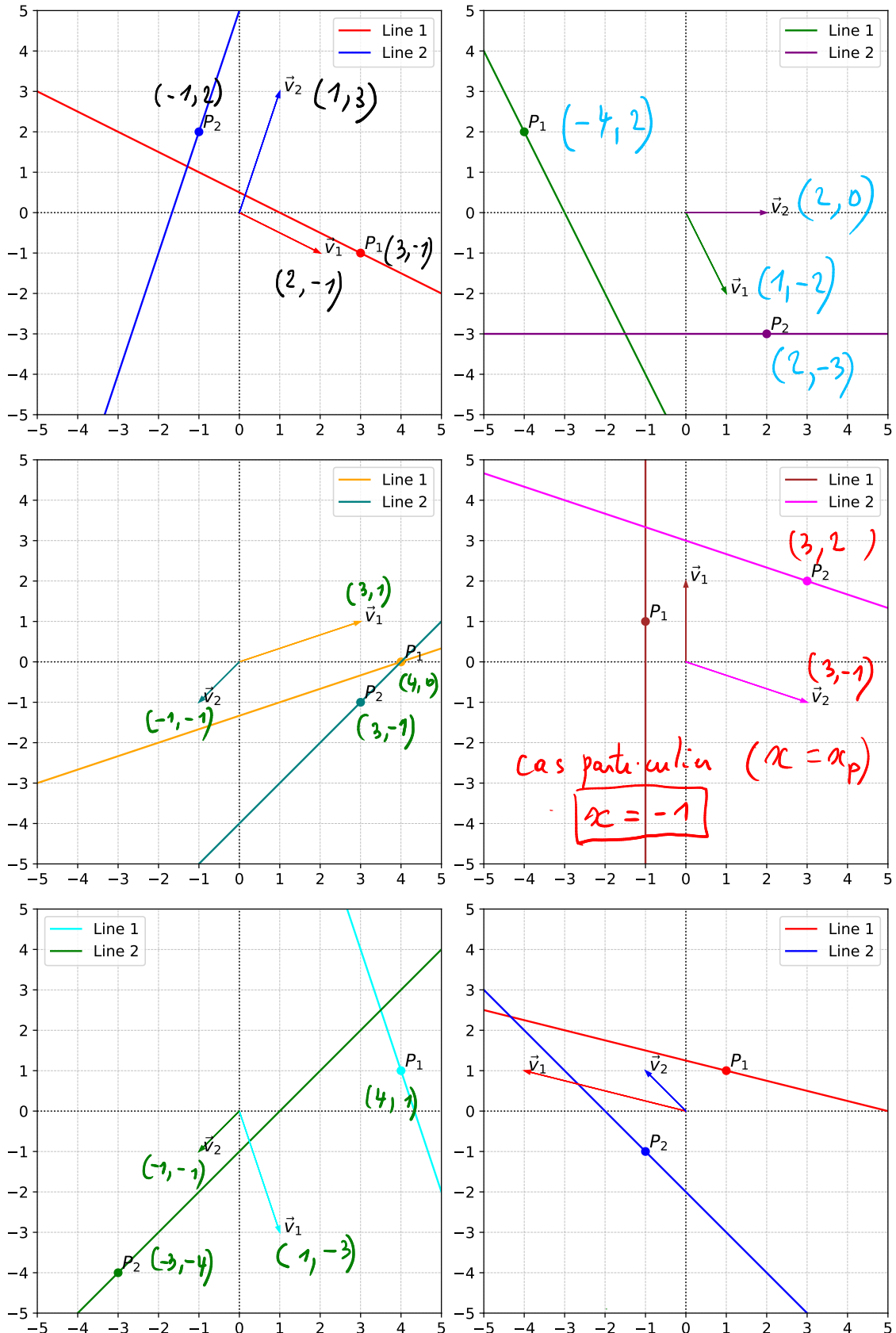
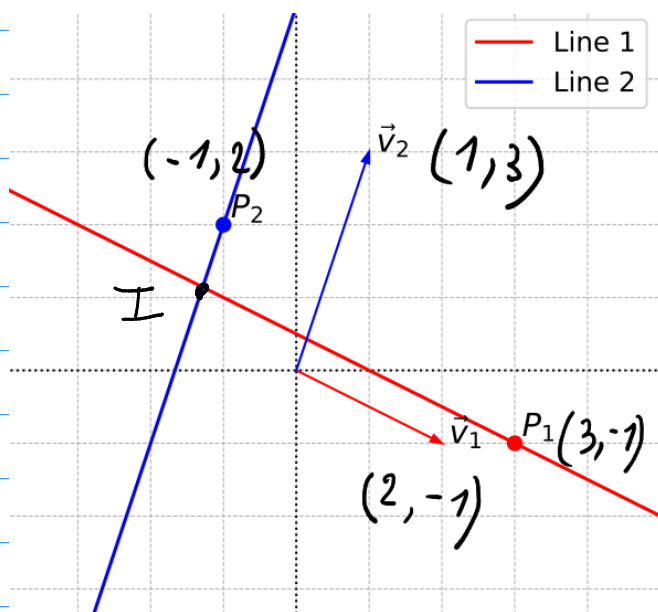


# PREPA - Intersection de droites

Détermine l'intersection  $I$  des droites pour chacune des situations ci-dessous.

Chaque droite étant définie par un point de passage  $P$  et un vecteur directeur  $\vec{v}$





pente

$$m = \frac{V_2}{V_1}$$

$$\text{Line 1 : } y + 1 = \frac{-1}{2} \cdot (x - 3) - 1$$

$$\text{Line 2 : } y - 2 = 3(x + 1) + 2$$

$$\text{en I : } -\frac{1}{2}(x-3) - 1 = \underbrace{3(x+1)}_{\cdot (-2)} + \underbrace{2}_{\cdot (-2)} \cdot (-2)$$

$$(x-3) + 2 = -6(x+1) - 4$$

$$\underbrace{x-3+2}_{-1} = -6 \underbrace{x-6-4}_{-10}$$

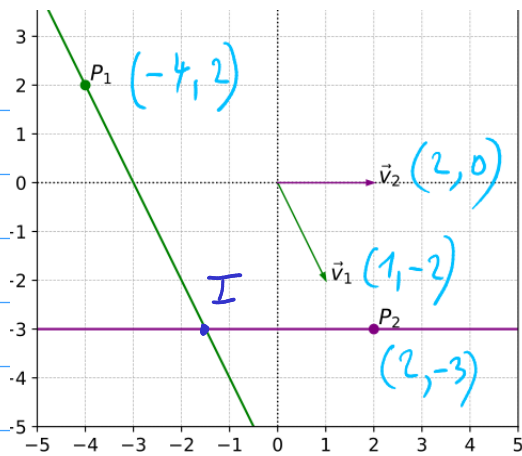
$$7x = -9$$

$$\begin{matrix} :7 \downarrow & & :7 \end{matrix}$$

$$x_I = -\frac{9}{7}$$

$$y = 3 \cdot \left(-\frac{9}{7} + 1\right) + 2 = \frac{8}{7}$$

$$\text{conclusion : } I \left(-\frac{9}{7}, \frac{8}{7}\right)$$



$$\text{Line 1 : } y - 2 = -2(x + 4)$$

$$\text{Line 2 : } y + 3 = \frac{0}{2} \cdot (x - 2)$$

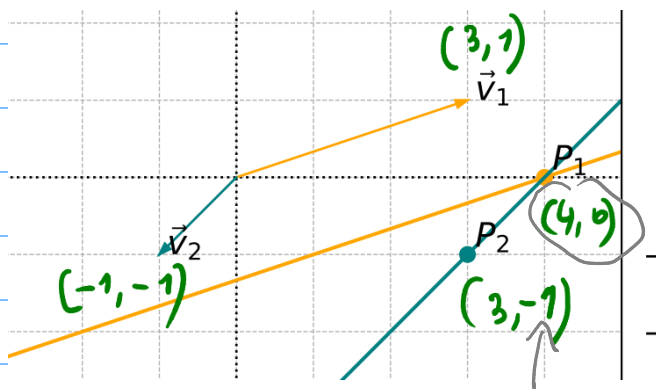
$$\text{en I : } -2(x + 4) + 2 = -3$$

$$-2x - 8 + 2 = -3$$

$$: (-2) \left( \begin{array}{l} -2x \\ x \end{array} = \begin{array}{l} 3 \\ -\frac{3}{2} \end{array} \right) : (-2)$$

$$\Rightarrow y = -3$$

$$\text{conclusion I} \left( -\frac{3}{2}, -3 \right)$$



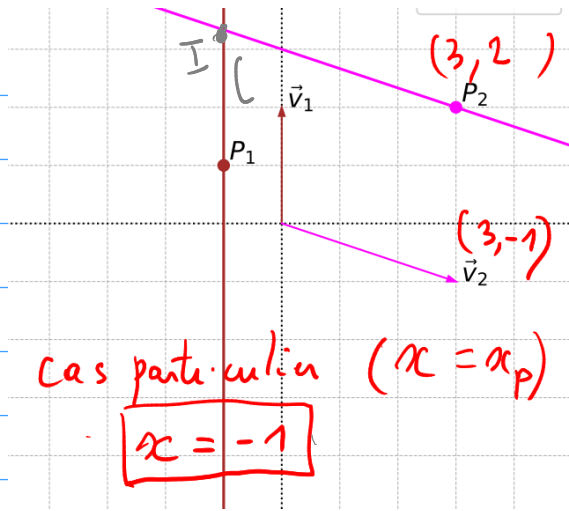
$$\begin{cases} \text{line 1 : } y - 0 = \frac{1}{3}(x - 4) \\ \text{line 2 : } y + 1 = 1 \cdot (x - 3) \end{cases}$$

$$y - y_p = \frac{v_2}{v_1}(x - x_p)$$

$$\text{en I : } \frac{1}{3}(x - 4) = x - 3 - 1$$

$$\Rightarrow \cdot 3 \left( \begin{array}{l} x - 4 \\ x \end{array} = \begin{array}{l} 3x - 9 - 3 \end{array} \right) \cdot 3$$

$$\Rightarrow \text{I} (4, 0) - 2x = -8 \Rightarrow x = 4 \quad y = 0$$



~~line 1~~

line 1 :  $x = -1$

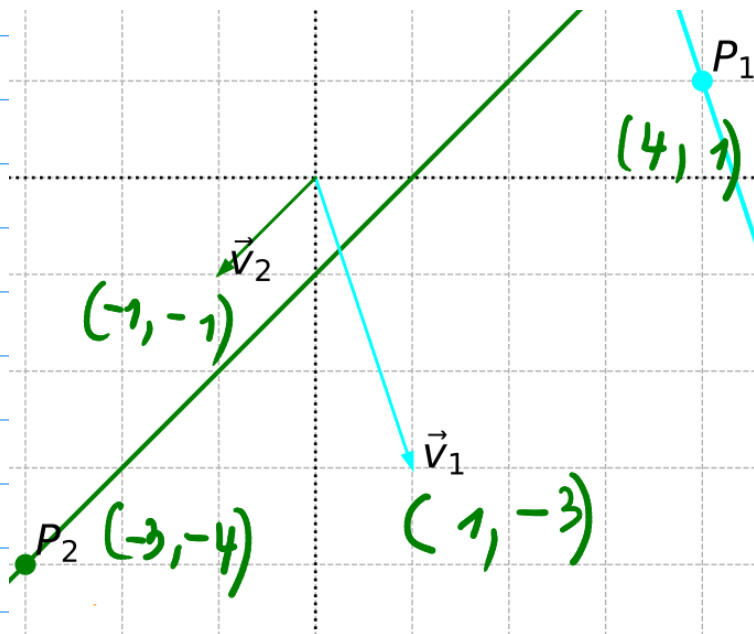
line 2 :  $y - 2 = -\frac{1}{3} \cdot (x - 3)$

en I :  $x = -1$

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

$= \frac{10}{3}$

Donc I  $(-1, \frac{10}{3})$



line 1 :  $y - 1 = -3 \cdot (x - 4)$

line 2 :  $y + 4 = x + 3$

en I :  $-3(x - 4) + 1 = x - 1$

$-3x + 13 = x - 1$

$-4x = -14$

$x = \frac{7}{2}$

$y = \frac{7}{2} - 1 = \frac{5}{2}$

I  $(\frac{7}{2}, \frac{5}{2})$