

Ex 3.9

a) $\vec{d}_a = \vec{AB} = \begin{pmatrix} 5-2 \\ 6-4 \end{pmatrix} = \begin{pmatrix} 3 \\ 2 \end{pmatrix} \Rightarrow a: \underline{\underline{\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 2 \\ 4 \end{pmatrix} + k \begin{pmatrix} 3 \\ 2 \end{pmatrix}, k \in \mathbb{R}}$

b) $\vec{d}_a = \begin{pmatrix} 3 \\ 2 \end{pmatrix} \Rightarrow a: 2x - 3y + c = 0$
 $A \in a \Rightarrow \begin{matrix} 2 \cdot 2 - 3 \cdot 4 + c = 0 \\ c = 8 \end{matrix} \Rightarrow \underline{\underline{a: 2x - 3y + 8 = 0}}$

c) $\begin{cases} x = 1 + 6k \\ y = 4k \end{cases} \begin{matrix} \cdot 2 \\ \cdot (-3) \end{matrix} \Rightarrow 2x - 3y = 2 \Rightarrow \underline{\underline{b: 2x - 3y - 2 = 0}}$

d) $\vec{d}_c = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$ et si $x=0, y=10 \Rightarrow (0, 10) \in c$

$\Rightarrow \underline{\underline{c: \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 0 \\ 10 \end{pmatrix} + k \begin{pmatrix} -1 \\ 2 \end{pmatrix}, k \in \mathbb{R}}$

e) bnc : $\begin{cases} 2x - 3y - 2 = 0 \\ 2x + y - 10 = 0 \end{cases} \begin{matrix} \cdot 1 \\ \cdot (-1) \end{matrix}$

$\Rightarrow -4y + 8 = 0$

$y = 2$

$\Rightarrow 2x + 2 - 10 = 0$

$x = 4$

$\Rightarrow \underline{\underline{I(4, 2)}}$

f) $\underline{\underline{P \in b}}$ car $2 \cdot 10 - 3 \cdot 6 - 2 = 0 \checkmark$

g) $C(6, y) \in c : 2 \cdot 6 + y - 10 = 0 \Leftrightarrow y = -2 \Rightarrow \underline{\underline{C(6, -2)}}$

h) $\underline{\underline{m_a = m_b = \frac{2}{3}}} \Rightarrow a \parallel b$