14 *Résoudre les systèmes paramétriques dans* $\mathbf{R}^2$ *selon le modèle suivant.*

① $\begin{cases} (m-4)x + my = -2 \\ 3x + y = 3 \end{cases}$ ② $\begin{cases} mx + 3y = 5 \\ 6x + 2y = 3 \end{cases}$ ③ $\begin{cases} 7x - (m+5)y = 0 \\ 2x + y = 1 \end{cases}$

④ $\begin{cases} 4x + my = 3 \\ mx + 4y = m+1 \end{cases}$ ⑤ $\begin{cases} ax + by = ab+1 \\ abx + ay = a^2 + b \end{cases}$ ⑥ $\begin{cases} x - (m+1)y = m \\ (m+2)x + (m+1)y = -1 \end{cases}$

⑦ $\begin{cases} (a+b)x + by = a \\ (a+b)x + ay = b \end{cases}$ ⑧ $\begin{cases} y = mx + 2m \\ 2x = y - 3m \end{cases}$ ⑨ $\begin{cases} 2x = my + m \\ 3x + 2y = 1 \end{cases}$

corrections : exercice 14 le n°7 - 9

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$$\boxed{7} \begin{cases} (a + b)x + by = a \\ (a + b)x + ay = b \end{cases} \quad et \ (x;y) \in \mathbb{R}^2$$

$$\Leftarrow \quad D = \begin{vmatrix} (a+b) & b \\ (a+b) & a \end{vmatrix} = (a+b)\cdot a - (a+b)\cdot b = (a+b)(a-b)$$

$$\overset{et}{D_x} = \begin{vmatrix} a & b \\ b & a \end{vmatrix} = a^2 - b^2 = (a+b)(a-b)$$

$$\overset{et}{D_y} = \begin{vmatrix} (a+b) & a \\ (a+b) & b \end{vmatrix} = (a+b)\cdot b - (a+b)\cdot a = (a+b)(b-a)$$

$$et \quad a \neq b \ et \ a \neq -b \ et \ D \neq 0 \ et \ (x;y) \in \left\{ (1 ; -1) \right\}$$

$$\overset{ou}{a = b} \quad et \ D = 0 \ et \ D_x = 0 = D_y \quad et$$

$$\begin{cases} 2ax + ay = a \\ \cancel{2ax + ay = a} \end{cases}$$

$$et \ a = 0 \ et \ 0\cdot x + 0\cdot y = 0 \ et \ (x;y) \in \mathbb{R}^2$$

$$ou \ a \neq 0 \ et \ 2x + y = 1$$

$$et \ (x;y) \in \left\{ (k ; 1-2k) \mid k \in \mathbb{R} \right\}$$

$$\overset{ou}{a = -b} \ (et \ a \neq 0) \ et \ D = 0 \ et \ D_x = 0 = D_y$$

$$et \begin{cases} 0x - ay = a \\ \cancel{0x + ay = -a} \end{cases} \quad et \ y = -1$$

$$et \ (x;y) \in \left\{ (k ; -1) \mid k \in \mathbb{R} \right\}$$

⑨ $\begin{cases} 2x = my + m \\ 3x + 2y = 1 \end{cases}$ et $(x ; y) \in \mathbb{R}^2$

$\Leftarrow) \begin{cases} 2x - my = m \\ 3x + 2y = 1 \end{cases}$

$\Leftarrow) \begin{cases} \boxed{D =} \begin{vmatrix} 2 & -m \\ 3 & 2 \end{vmatrix} = 4 + 3m \\ D_x = \begin{vmatrix} m & -m \\ 1 & 2 \end{vmatrix} = 2m + m = 3m \\ D_y = \begin{vmatrix} 2 & m \\ 3 & 1 \end{vmatrix} = 2 - 3m \end{cases}$

et $m \neq -\dfrac{4}{3}$ et $D \neq 0$

et $(x ; y) \in \left\{ \left(\dfrac{3m}{3m+4} \; ; \dfrac{2-3m}{3m+4} \right) \right\}$

ou

$m = -\dfrac{4}{3}$ et $D = 0$ et $D_x = -4 \neq 0$

$\left(\text{et } D_y = 6 \neq 0 \right)$

et $(x ; y) \subset \emptyset$