Exercice 1

$$\begin{cases} 2x + y = 2 \\ -2x + 2y = 1 \end{cases}$$

$$\Leftrightarrow \begin{cases} 3y = 3 \\ -2x + 2y = 1 \end{cases}$$

$$\Leftrightarrow \begin{cases} y = 1 \\ -2x = 1 - 2 \end{cases}$$

$$\Leftrightarrow \begin{cases} y = 1 \\ x = \frac{-1}{-2} \end{cases}$$

$$\Leftrightarrow \begin{cases} y = 1 \\ x = \frac{1}{2} \end{cases}$$

$$\left|\begin{array}{cc|c} 2 & 1 & 2 \\ -2 & 2 & 1 \end{array}\right| \Leftrightarrow \left|\begin{array}{cc|c} 0 & 3 & 3 \\ -2 & 2 & 1 \end{array}\right|$$

$$\Leftrightarrow \left(\begin{array}{cc|c} 0 & 1 & 1 \\ 1 & -1 & -\frac{1}{2} \end{array}\right)$$

$$\Leftrightarrow \left(\begin{array}{cc|c} 0 & 1 & 1 \\ 1 & 0 & \frac{1}{2} \end{array}\right)$$

Exercice 2

1. Faux car $\lambda \notin \mathbb{Z}^2$ donc stabilité · NON

2. ~~$\mathbb{P}_n = \{a_0, a_1 x, \ldots, a_n x^n \mid a_n \neq 0\} \cup \{\ldots \neq 0\}$~~

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3. Faux. Commutabilité broken.

(4)

$$v^{cd} = (v^d)^c$$

$$= v^{dc} = v^{dc}$$

$$v^{(\lambda+\beta)} = v^{\lambda} + v^{\beta}$$

$$(v+w)^{\lambda} = v^{\lambda} + w^{\lambda}$$

$$= \text{“} v^{\lambda} \times w^{\lambda} \text{”}$$

$$= (vw)^{\lambda}$$

$$x_1 \frac{\lambda}{x_1}$$

$$\lambda = \lambda$$

$x_1 \oplus x_1$

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Exercice 3

(a)

$$\lambda T_1(x_1, x_2, x_3)$$

$$= T_1(\lambda x_1, \lambda x_2, \lambda x_3)$$

$$= \lambda 3x_1 - \lambda x_2 - \lambda 15 x_3$$ Ok

$$T_4(x_1+y_1, x_2+y_2, x_3+y_3)$$

$$= T_3(x_1, x_2, x_3) + T_4(y_1, y_2, y_3)$$

$$3(x_1+y_1) - (x_2+y_2) - 18(x_3+y_3)$$

$$= 3x_1 - x_2 - 18x_3 + 3y_1 - y_2 - 18y_3$$

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② $\lambda T_2(x_1, x_2) = \lambda + \lambda x_1 t + \lambda t^2(x_1+3x_2)$

$$T_2(\lambda x_1, \lambda x_2)$$

$$= 1 + \lambda x_1 t$$

$$+ t^2(\lambda x_1 + 3x_2\lambda)$$

(3)