

Name:

1. Answer the following questions “true” or “false.”

(a) The following system of equations has at least one solution.

$$\begin{aligned}3x + 4y &= 0 \\ \pi x - y &= 0 \\ -7x + 19y &= 0\end{aligned}$$

(b) Let $A = \begin{pmatrix} 1 & 0 \\ 1 & 0 \end{pmatrix}$. Then $AB = BA$ for all 2×2 matrices B .

(c) Let $A = \begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$. Then $AB = BA$ for all 2×2 matrices B .

2. Give all solutions to the following system of equations.

$$2w - x - 2y - 3z = 1$$

$$3x + 9y + 12z = -8$$

$$4w + x + 5y - 3z = 0$$