

Name:

MATH 4377/6308 - Advanced linear algebra I - Summer 2024

Extra problems

Determine the values of the parameter k such that the following system of equations has unique solution, no solution or infinitely many solutions.

a)

$$\begin{aligned}x - y &= k - 1 \\x + 2y &= 0\end{aligned}$$

b)

$$\begin{aligned}kx - y &= k - 1 \\kx + 2y &= 1\end{aligned}$$

c)

$$\begin{aligned}x - y &= k - 2 \\kx - ky &= -1\end{aligned}$$

d)

$$\begin{aligned}y + z &= k - 1 \\kx + 2y &= 1 \\-3x + y &= 0\end{aligned}$$

e)

$$\begin{aligned}x + y + z &= k - 1 \\x + y + z &= 1 \\-3x + y &= 0\end{aligned}$$