

EE 2240
Problem #01

Use Cramer's Rule to solve for x and y .

$$\begin{bmatrix} 1 & 2 \\ 5 & 7 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ -2 \end{bmatrix}$$

$$\begin{aligned} x &= \frac{\begin{vmatrix} -1 & 2 \\ -2 & 7 \end{vmatrix}}{\begin{vmatrix} 1 & 2 \\ 5 & 7 \end{vmatrix}} = \frac{(-1)(7) - (2)(-2)}{(1)(7) - (2)(5)} \\ &= \frac{-7 + 4}{7 - 10} \\ &= \frac{-3}{-3} \\ &= 1 \end{aligned}$$

$$\begin{aligned} y &= \frac{\begin{vmatrix} 1 & -1 \\ 5 & -2 \end{vmatrix}}{\begin{vmatrix} 1 & 2 \\ 5 & 7 \end{vmatrix}} = \frac{(1)(-2) - (-1)(5)}{-3} \\ &= \frac{-2 + 5}{-3} \\ &= \frac{3}{-3} \\ &= -1 \end{aligned}$$