

Ch. 5 Review pg. 274

(Find the inverse matrix)

$$30) \begin{cases} x - 2y = 4 \\ -3 + 10y = 24 \end{cases}$$

$$A = \begin{bmatrix} 1 & -2 \\ -3 & 10 \end{bmatrix}$$

$$B = \begin{bmatrix} 4 \\ 24 \end{bmatrix}$$

Definitely
problem like
this on final

$$\text{find } A^{-1} = \frac{1}{(1)(10) - (-2)(-3)} \begin{bmatrix} 10 & 2 \\ 3 & 1 \end{bmatrix}$$

$10 - 6$

A
INVERSE \rightarrow

$$A^{-1} = \frac{1}{4} \begin{bmatrix} 10 & 2 \\ 3 & 1 \end{bmatrix}$$

Solution:
 $A^{-1} \cdot B$

$$\frac{1}{4} \begin{bmatrix} 10 & 2 \\ 3 & 1 \end{bmatrix} \begin{bmatrix} 4 \\ 24 \end{bmatrix} = \frac{1}{4} \begin{bmatrix} 10 \times 4 & 2 \times 24 \\ 3 \times 4 & 1 \times 24 \end{bmatrix} = \frac{1}{4} \begin{bmatrix} 40 + 48 \\ 12 + 24 \end{bmatrix} =$$

$$\frac{1}{4} \begin{bmatrix} 88 \\ 36 \end{bmatrix} = \begin{bmatrix} 22 \\ 9 \end{bmatrix} \quad \text{or } \begin{cases} x = 22 \\ y = 9 \end{cases}$$

$$30b) \begin{cases} x - 2y = 5 \\ -3x + 10y = 11 \end{cases} = A^{-1} = \frac{1}{4} \begin{bmatrix} 10 & 2 \\ 3 & 1 \end{bmatrix} \cdot \begin{bmatrix} 5 \\ 11 \end{bmatrix} =$$

$$\frac{1}{4} \begin{bmatrix} 50 + 22 \\ 15 + 11 \end{bmatrix} = \frac{1}{4} \begin{bmatrix} 72 \\ 26 \end{bmatrix} =$$

$$\frac{1}{2} \begin{bmatrix} 36 \\ 13 \end{bmatrix} \quad \text{or } \begin{bmatrix} 18 \\ 6.5 \end{bmatrix}$$

Do NOT
leave answers
unsimplified