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$C \times X$

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 6 \\ 15 \end{bmatrix}$$

2×3 $\quad$ 3×1 $\quad$ 2×1

$X' \times X$

$$\begin{bmatrix} 1 & 1 & 1 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} = 3$$

1×3 $\quad$ 3×1 $\quad$ 1×1

$C \times D$

2×3 $\quad$ 2×3

$$2x + 5y + 4z = 5$$

$$8x + 4y + 2z = 2$$

$$x + 6y + 7z = 7$$

$$\underbrace{\begin{bmatrix} 2 & 5 & 4 \\ 8 & 4 & 2 \\ 1 & 6 & 7 \end{bmatrix}}_{A} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \underbrace{\begin{bmatrix} 5 \\ 2 \\ 7 \end{bmatrix}}_{B}$$

A: 3×3 $\quad$ Unknown $\quad$ B: 3×1

$$AX = B$$

$$x = A^{-1}B \quad \text{Left division}$$

↑ Left multiplication

$$= A \backslash B$$

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$C = A \overleftarrow{\bullet\backslash} B \rightarrow \frac{B}{A}$ left

$C = A \overrightarrow{\bullet/} B \rightarrow \frac{A}{B}$ right