

Unit 4.3 = Multiplying Matrices (pg 200)

$$A \times B$$

$m \times r$ $r \times t$

$$A \times B \quad A \times B$$

2×3 3×4 1×4 4×2

$AB = 2 \times 4$ $AB = 1 \times 2$

Ex #1 (a) $A_{3 \times 4} \times B_{4 \times 2}$

Yes, 4×2

b) $A_{5 \times 3}$ and $B_{5 \times 4}$

NO - can NOT mult

Ex #2

$$\begin{bmatrix} 6 & -3 \\ -10 & -2 \end{bmatrix} \neq \begin{bmatrix} -5 & -4 \\ 3 & 3 \end{bmatrix}$$

$XY =$ [2nd] [Matrix] → → Edit Enter

2×2 $\begin{bmatrix} 6 & -3 \\ -10 & -2 \end{bmatrix}$

[2nd] [Matrix] → → Edit ↓ [B] Enter

2×2 $\begin{bmatrix} -5 & -4 \\ 3 & 3 \end{bmatrix}$

* [2nd] [Quit] [2nd] [Matrix] Highlight [A] Enter

pg 203 #4) $G = \begin{bmatrix} 1 & 3 & -5 \\ 4 & -2 & 0 \end{bmatrix}$ [2nd] [Matrix] ↓ [B] Enter [A] * [B]

$H = \begin{bmatrix} 2 & 3 \\ -2 & -8 \\ 1 & 7 \end{bmatrix}$ 2×3 3×2

$GH = [A] * [B]$ Enter

$\begin{bmatrix} -9 & -56 \\ 12 & 28 \end{bmatrix}$

HG

3×2 2×3

$$\begin{bmatrix} 14 & 0 & -10 \\ -34 & 10 & 10 \\ 29 & -11 & -5 \end{bmatrix}$$

$[H] * [G]$ $[B] * [A]$

Ex 5) $J = \begin{bmatrix} 2 & 4 \\ -3 & 2 \end{bmatrix}$ $K = \begin{bmatrix} 3 & 2 \\ -1 & 3 \end{bmatrix}$ $L = \begin{bmatrix} -4 & -1 \\ 3 & 0 \end{bmatrix}$ $\begin{bmatrix} 6 & 14 \\ 1 & -11 \end{bmatrix}$

$J(K+L)$ $J = \begin{bmatrix} 2 & 4 \\ -3 & 2 \end{bmatrix}$ $K+L = \begin{bmatrix} -1 & 3 \\ 2 & 3 \end{bmatrix}$ $[A] * [B]$ Enter

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$AB = 2 \times 4$

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$$\begin{bmatrix} 6 & -3 \\ -10 & -2 \end{bmatrix} \times \begin{bmatrix} -5 & -4 \\ 3 & 3 \end{bmatrix}$$

$XY =$ [2nd] [Matrix] ~~XXXX~~ → → Edit Enter

2×2 $\begin{bmatrix} 6 & -3 \\ -10 & -2 \end{bmatrix}$

[2nd] [Matrix] → → Edit ↓ [B] Enter

2×2 $\begin{bmatrix} -5 & -4 \\ 3 & 3 \end{bmatrix}$

* [2nd] [Quit] [2nd] [Matrix] Highlight [A] Enter

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#4) $G = \begin{bmatrix} 1 & 3 & -5 \\ 4 & -2 & 0 \end{bmatrix}$

[2nd] [Matrix] ↓ [B] Enter [2] * [5]

39	33
44	25

$H = \begin{bmatrix} 2 & 3 \\ -2 & 8 \\ 1 & 7 \end{bmatrix}$ 2×3 3×2

$GH:$ [A] * [B] Enter

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HG

3×2 2×3

$$\begin{bmatrix} 14 & 0 & -10 \\ -34 & 10 & 10 \\ 29 & -11 & -5 \end{bmatrix}$$

[H] * [G]
[B] * [A]

Ex #5) $J = \begin{bmatrix} 2 & 4 \\ -5 & -2 \end{bmatrix}$ $K = \begin{bmatrix} 3 & 2 \\ -1 & 3 \end{bmatrix}$ $L = \begin{bmatrix} -4 & -1 \\ 3 & 0 \end{bmatrix}$ $\begin{bmatrix} 6 & 14 \\ 1 & -11 \end{bmatrix}$

$J(K+L)$ $J = \begin{bmatrix} 2 & 4 \\ -5 & -2 \end{bmatrix}$ $K+L = \begin{bmatrix} -1 & 3 \\ 2 & 3 \end{bmatrix}$ [A] * [B] Enter