

- 1.1) $A \times B = ?$
- 1.2) $A \times C = ?$
- 1.3) $C \times D = ?$
- 1.4) $B \times D = ?$

1	3	7
5	1	2
0	1	2

A

2	0	1
4	1	3
3	5	2

B

1	3	7
5	1	2

C

2
4
3

D

$$A \times B =$$

$$\begin{bmatrix} (1 \times 2 + 3 \times 4 + 7 \times 3) & (1 \times 0 + 3 \times 1 + 7 \times 5) & (1 \times 1 + 3 \times 3 + 7 \times 2) \\ (5 \times 2 + 1 \times 4 + 2 \times 3) & (5 \times 0 + 1 \times 1 + 2 \times 5) & (5 \times 1 + 1 \times 3 + 2 \times 2) \\ (0 \times 2 + 1 \times 4 + 2 \times 3) & (0 \times 0 + 1 \times 1 + 2 \times 5) & (0 \times 1 + 1 \times 3 + 2 \times 2) \end{bmatrix}$$

$$= \begin{bmatrix} 35 & 38 & 24 \\ 20 & 11 & 12 \\ 10 & 11 & 7 \end{bmatrix}$$

$A \times C$: The dimensions doesn't allow matrix multiplication

$$A \times D =$$

$$\begin{bmatrix} 2 \times 2 + 3 \times 4 + 7 \times 3 \\ 5 \times 2 + 1 \times 4 + 2 \times 3 \end{bmatrix} = \begin{bmatrix} 35 \\ 20 \end{bmatrix}$$

$$B \times D =$$

$$\begin{bmatrix} 2 \times 2 + 0 \times 4 + 1 \times 3 \\ 4 \times 2 + 1 \times 4 + 3 \times 3 \\ 3 \times 2 + 5 \times 4 + 2 \times 3 \end{bmatrix} = \begin{bmatrix} 7 \\ 21 \\ 32 \end{bmatrix}$$