



Multiply two matrices

1 Is the matrix product AB defined?

A is a (3×3) matrix

[6pt] B is a (3×3) matrix

A

No

B

Yes

2 Which expression gives the value of the highlighted entry of AB ?

A

$$2 \cdot 4 + (-2) \cdot 9$$

B

$$(-7) \cdot 4 + 0 \cdot 9$$

3 Choose the product with the highlighted entry filled in correctly.

A

$$\begin{bmatrix} ? & ? & ? & 7 \\ ? & ? & ? & ? \end{bmatrix}$$

B

$$\begin{bmatrix} ? & ? & ? & 13 \\ ? & ? & ? & ? \end{bmatrix}$$

4 Which expression gives the value of the highlighted entry of Av ?

A

$$(-5) \cdot 1 + (-1) \cdot 2$$

B

$$7 \cdot 1 + (-2) \cdot 2$$

5 Choose the product with the highlighted row filled in correctly.

A

$$\begin{bmatrix} ? & ? & ? \\ 8 & -8 & 14 \\ ? & ? & ? \\ ? & ? & ? \end{bmatrix}$$

B

$$\begin{bmatrix} ? & ? & ? \\ -29 & 29 & -27 \\ ? & ? & ? \\ ? & ? & ? \end{bmatrix}$$

6 Which rows/columns are multiplied and added to determine this value?

7 Find the matrix-vector product Av .

$$A = \begin{bmatrix} -4 & -2 & 3 \\ 8 & -1 & 0 \\ 9 & 4 & 2 \end{bmatrix}$$

$$[8pt] v = \begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}$$

$$[8pt] Av = \begin{bmatrix} ? \end{bmatrix}$$

A $\begin{bmatrix} -1 \\ 12 \\ 13 \end{bmatrix}$

B $\begin{bmatrix} -13 \\ -12 \\ 1 \end{bmatrix}$

C $\begin{bmatrix} 13 \\ 11 \\ -1 \end{bmatrix}$

D $\begin{bmatrix} 13 \\ 12 \\ -1 \end{bmatrix}$



Multiply two matrices

- 8 What are the dimensions of the matrix product AB ?

A is a (2×3) matrix

[6pt] B is a (3×3) matrix

A (2×3)

B (3×2)

C (3×3)

D [undefined]

- 9 What are the dimensions of the matrix product AB ?

$$A = \begin{bmatrix} -4 & -2 \\ 7 & -1 \\ 4 & 2 \\ -3 & 6 \end{bmatrix}$$

[8pt] $B = \begin{bmatrix} 3 & 5 \\ -6 & 7 \end{bmatrix}$

A (4×2)

B (2×2)

C [undefined]

D (2×4)

- 10 Find the matrix product AB .

$$A = \begin{bmatrix} -1 & 1 \\ 0 & 2 \end{bmatrix}$$

[8pt] $B = \begin{bmatrix} -8 & -3 & -6 \\ -1 & -4 & 4 \end{bmatrix}$

[8pt] $AB = [?]$

A $\begin{bmatrix} 7 & -1 & 10 \\ -2 & -8 & 8 \end{bmatrix}$

B $\begin{bmatrix} -7 & 1 & -10 \\ 2 & 8 & -8 \end{bmatrix}$

C $\begin{bmatrix} 8 & -1 & 10 \\ -2 & -8 & 8 \end{bmatrix}$

D $\begin{bmatrix} -9 & -7 & -2 \\ -7 & -5 & 0 \end{bmatrix}$