Name

Calculate the dot product of a matrix row and column



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

A

$$(-3)\cdot(-9)+8\cdot(-1)$$

B

$$(-3)\cdot 1+8\cdot(-2)$$

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

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

A

$$(-3)\cdot 4+(-6)\cdot 2+(-9)\cdot(-2)$$

B

$$1\cdot 4+4\cdot 2+3\cdot(-2)$$

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

A

$$(-8)\cdot(-2)+0\cdot 3$$

B

$$(-5)\cdot(-2)+3\cdot 3$$

5 Write the dot product u · v as an algebraic expression.

$$\vec{u}=\begin{bmatrix}4\\6\end{bmatrix},\ \vec{v}=\begin{bmatrix}-4\\4\end{bmatrix}$$

A

$$\vec{u}\cdot\vec{v}=(4)(-4)-(6)(4)$$

B

$$\vec{u}\cdot\vec{v}=(4)(4)+(6)(-4)$$

C

$$\vec{u}\cdot\vec{v}=(4)(-4)+(6)(4)$$

D

$$\vec{u}\cdot\vec{v}=(4)+(-4)+(6)+(4)$$

6 Write the dot product u · v as an algebraic expression.

$\vec{u}=[4,\ -5],\ \vec{v}=[2,\ 5]\quad \vec{u}\cdot\vec{v}=u_xv_x+u_yv_y$

A $\vec{u}\cdot\vec{v}=(4)(2)+(-5)(5)$

B $\vec{u}\cdot\vec{v}=(4)+(2)+(-5)+(5)$

C $\vec{u}\cdot\vec{v}=(4)(2)-(-5)(5)$

D $\vec{u}\cdot\vec{v}=(4)(5)+(-5)(2)$

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

A

$$\begin{bmatrix}?&?\\16&3\end{bmatrix}$$

B

$$\begin{bmatrix}?&?\\-18&19\end{bmatrix}$$

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

A

$$\begin{bmatrix} ? & ? \\ ? & -2 \end{bmatrix}$$

B

$$\begin{bmatrix} ? & ? \\ ? & -30 \end{bmatrix}$$

9 Find the matrix product AB.

$$A = \begin{bmatrix} 3 & 6 \\ 0 & -2 \end{bmatrix}$$

$$[8pt] B = \begin{bmatrix} 1 & 0 \\ 3 & -1 \end{bmatrix}$$

$$[8pt] AB = [\,?\,]$$

A

$$\begin{bmatrix} 13 & 8 \\ 2 & -3 \end{bmatrix}$$

B

$$\begin{bmatrix} 21 & -6 \\ -7 & 2 \end{bmatrix}$$

C

$$\begin{bmatrix} 21 & -6 \\ -6 & 2 \end{bmatrix}$$

D

$$\begin{bmatrix} -21 & 6 \\ 6 & -2 \end{bmatrix}$$

10 Find the matrix-vector product Av.

$$A = \begin{bmatrix} 2 & -3 \\ 0 & -4 \\ -6 & 1 \\ 6 & 8 \end{bmatrix}$$

$$[8pt] v = (0,\ 2)$$

$$[8pt] Av = [\,?\,]$$

A

$$(-6,\ -8,\ 2,\ 17)$$

B

$$(-6,\ -8,\ 2,\ 16)$$

C

$$(16,\ 2,\ -8,\ -6)$$

D

$$(6,\ 8,\ -2,\ -16)$$

11 Find the matrix-vector product Av.

$$A = \begin{bmatrix} -1 & 1 \\ 3 & -2 \\ 2 & 5 \\ 7 & -4 \end{bmatrix}$$

$$[8pt] v = \begin{bmatrix} 0 \\ -2 \end{bmatrix}$$

$$[8pt] Av = [\,?\,]$$

A

$$\begin{bmatrix} 2 \\ -4 \\ 10 \\ -8 \end{bmatrix}$$

B

$$\begin{bmatrix} -2 \\ 3 \\ -10 \\ 8 \end{bmatrix}$$

C

$$\begin{bmatrix} 8 \\ -10 \\ 4 \\ -2 \end{bmatrix}$$

D

$$\begin{bmatrix} -2 \\ 4 \\ -10 \\ 8 \end{bmatrix}$$