Name



Model transformations using matrices

1 Find the matrix-vector product Av.

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

$[8pt] v = (-3,\ -9,\ -5)$

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

A	B
$(25,\ -2)$	$(-2,\ 24)$
C	D
$(-2,\ 25)$	$(2,\ -25)$

2 Is the matrix-vector product Av defined?

$A = \begin{bmatrix} -6 & 4 \\ -5 & 1 \\ 7 & 8 \\ -1 & 6 \end{bmatrix}$

$[8pt] v = (-9,\ 4)$

A	B
Yes	No

3 Is the matrix product AB defined?

A is a (3×3) matrix

$[6pt] B$ is a (2×2) matrix

A	B
No	Yes

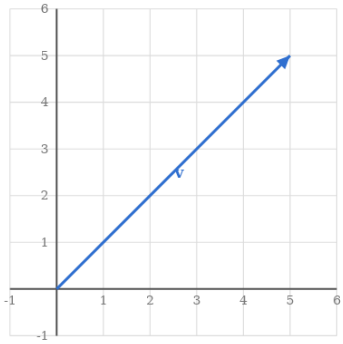
4 Is the matrix-vector product Av defined?

$A = \begin{bmatrix} 2 & 4 & -9 \\ 6 & -5 & 0 \end{bmatrix}$

$[8pt] v = \begin{bmatrix} 2 \\ 4 \end{bmatrix}$

A	B
No	Yes

5 Write the vector shown on the grid in column matrix form.



A	B
$\begin{bmatrix} -5 \\ -5 \end{bmatrix}$	$\begin{bmatrix} 5 \\ 5 \end{bmatrix}$
C	D
$\begin{bmatrix} 5 \\ -5 \end{bmatrix}$	$\begin{bmatrix} -5 \\ 5 \end{bmatrix}$

Name



Model transformations using matrices

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

A

$$\begin{bmatrix} ? & ? & 24 \\ ? & ? & ? \end{bmatrix}$$

B

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

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

A

$$6 \cdot 0 + 5 \cdot 1$$

B

$$8 \cdot 0 + (-8) \cdot 1$$

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

A

$$(-2) \cdot 1 + 6 \cdot 4$$

B

$$(-9) \cdot 1 + 1 \cdot 4$$

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

A

$$(-1) \cdot (-7) + 4 \cdot (-3)$$

B

$$0 \cdot (-7) + (-9) \cdot (-3)$$

10 Find the matrix-vector product Av.

$$A = \begin{bmatrix} 6 & 2 \\ -9 & 5 \\ -3 & -7 \end{bmatrix}$$

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

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

A $\begin{bmatrix} -4 \\ -10 \\ 14 \end{bmatrix}$

B $\begin{bmatrix} 4 \\ 10 \\ -14 \end{bmatrix}$

C $\begin{bmatrix} -4 \\ -11 \\ 14 \end{bmatrix}$

D $\begin{bmatrix} 14 \\ -10 \\ -4 \end{bmatrix}$

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

A

$$\begin{bmatrix} ? & ? \\ -5 & 9 \\ ? & ? \\ ? & ? \end{bmatrix}$$

B

$$\begin{bmatrix} ? & ? \\ 0 & -6 \\ ? & ? \\ ? & ? \end{bmatrix}$$