



Interpret a matrix product in context

- 1** Matrix A shows the cups sold of 4 drinks at 2 cafes. Matrix B shows the revenue and cost per drink. Which cafe had a total cost of 97?

$$A = \begin{bmatrix} 1 & 8 & 3 & 4 \\ 9 & 7 & 5 & 2 \end{bmatrix} \quad B = \begin{bmatrix} 9 & 1 \\ 3 & 7 \\ 2 & 8 \\ 6 & 4 \end{bmatrix} \quad AB = \begin{bmatrix} 63 & 97 \\ 124 & 106 \end{bmatrix}$$

A

Cafe 1

B

Cafe 2

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

A

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

B

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

- 3** What are the dimensions of the matrix product AB?

$$A = \begin{bmatrix} -4 & -7 \\ -8 & 7 \\ 2 & -5 \\ 8 & 6 \end{bmatrix}$$

$$[8pt] B = \begin{bmatrix} 4 & 3 & -4 & 7 \\ 9 & -8 & -1 & -7 \end{bmatrix}$$

A

$$(2 \times 4)$$

B

[undefined]

C

$$(4 \times 4)$$

D

$$(4 \times 2)$$

- 4** Choose the product with the highlighted row filled in correctly.

A

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

B

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

- 5** Choose the product with the highlighted entry filled in correctly.

A

$$\begin{bmatrix} 15 & ? \\ ? & ? \\ ? & ? \end{bmatrix}$$

B

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

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

- 7** Matrix A shows the cups sold of 3 drinks at 2 cafes. Matrix B shows the revenue and cost per drink. What is the total revenue at cafe 2?

$$A = \begin{bmatrix} 8 & 7 & 3 \\ 2 & 1 & 5 \end{bmatrix} \quad B = \begin{bmatrix} 8 & 5 \\ 6 & 7 \\ 3 & 2 \end{bmatrix} \quad AB = \begin{bmatrix} 115 & 95 \\ 37 & 27 \end{bmatrix}$$

A

95

B

37



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- 8** This matrix shows the orders of 2 drinks at 3 cafes. What does the value 35 represent?

$$\begin{bmatrix} 37 & 33 \\ 63 & 30 \\ 35 & 79 \end{bmatrix}$$

- A the orders of drink 2 at cafe 1
B the orders of drink 1 at cafe 3

- 9** This matrix shows the tickets sold of 3 movies at 2 cinemas. What is the tickets sold of movie 2 at cinema 1?

$$\begin{bmatrix} 74 & 70 & 69 \\ 27 & 96 & 66 \end{bmatrix}$$

A

70

B

27

- 10** Matrix A shows the quantity used of 3 parts at 2 factories. Matrix B shows the weight and price per part. What does the product AB represent?

$$A = \begin{bmatrix} 3 & 8 & 9 \\ 5 & 7 & 2 \end{bmatrix} \quad B = \begin{bmatrix} 9 & 2 \\ 7 & 1 \\ 5 & 3 \end{bmatrix}$$

- A the total weight and price at each factory
B the weight and price per part

- 11** Matrix A shows the quantity used of 4 parts at 2 factories. Matrix B shows the weight and price per part. What does the value 95 in AB represent?

$$A = \begin{bmatrix} 9 & 1 & 2 & 6 \\ 7 & 4 & 8 & 5 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 5 \\ 6 & 4 \\ 7 & 1 \\ 8 & 2 \end{bmatrix} \quad AB = \begin{bmatrix} 95 & 63 \\ 141 & 69 \end{bmatrix}$$

- A the total weight at factory 1
B the total price at factory 2