Matrices Homework – Homework: Multiplying Matrices II*

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Abstract

This module provides further practice problems related to multiplying matrices.

Exercise 1

Matrix $[A]$ is $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$. Matrix $[B]$ is $\begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$.

a. Find the product AB.
b. Find the product BA.

Exercise 2

Multiply.

$$\begin{bmatrix} 2 & 6 & 4 \\ 9 & 5 & 8 \end{bmatrix} \begin{bmatrix} 2 & 5 & 4 & 7 \\ 3 & 4 & 6 & 9 \\ 8 & 4 & 2 & 0 \end{bmatrix}$$

Exercise 3

Multiply.

$$\begin{bmatrix} 2 & 5 & 4 & 7 \\ 3 & 4 & 6 & 9 \\ 8 & 4 & 2 & 0 \end{bmatrix} \begin{bmatrix} 2 & 6 & 4 \\ 9 & 5 & 8 \end{bmatrix}$$

Exercise 4

$$\begin{bmatrix} 5 & 3 & 9 \\ 7 & 5 & 3 \\ 2 & 7 & 5 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

a. Multiply.

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b. Now, multiply $\begin{bmatrix} 5 & 3 & 9 \\ 7 & 5 & 3 \\ 2 & 7 & 5 \end{bmatrix} \begin{bmatrix} 2 \\ 10 \\ 5 \end{bmatrix}$—but not by manually multiplying it out! Instead, plug $x = 2$, $y = 10$, and $z = 5$ into the formula you came up with in part (a).

Exercise 5

Multiply.

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

Exercise 6

$$3 \begin{bmatrix} 3 & -2 \\ 6 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 9 \\ -3 \end{bmatrix}$$

a. Find the x and y values that will make this matrix equation true.
b. Test your answer by doing the multiplication to make sure it works out.

Exercise 7

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} \text{Some} & \text{Matrix} \end{bmatrix} = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

a. Find the "some matrix" that will make this matrix equation true.
b. Test your answer by doing the multiplication to make sure it works out.