Step-1

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Given that $D=\begin{bmatrix}2 & 0\\ 0 & 5\end{bmatrix}$

We have to describe the rows of DA and the columns of AD.

Step-2

Let $A=\begin{bmatrix}a & b\\ c & d\end{bmatrix}$ be any 2 by 2 matrix.

Now

$$\begin{aligned}DA&=\begin{bmatrix}2 & 0\\ 0 & 5\end{bmatrix}\begin{bmatrix}a & b\\ c & d\end{bmatrix}\\&=\begin{bmatrix}2(a)+0(c) & 2(b)+0(d)\\ 0(a)+5(c) & 0(b)+5(d)\end{bmatrix}\\&=\begin{bmatrix}2a & 2b\\ 5c & 5d\end{bmatrix}\end{aligned}$$

Therefore, $DA=\begin{bmatrix}2a & 2b\\ 5c & 5d\end{bmatrix}$

From *DA,* we observe that the first row of *DA* is 2 times the first row of *A* and the second row of *DA* is 5 times the second row of *A*.

Step-3

Now

$$\begin{aligned}AD&=\begin{bmatrix}a & b\\ c & d\end{bmatrix}\begin{bmatrix}2 & 0\\ 0 & 5\end{bmatrix}\\&=\begin{bmatrix}a(2)+b(0) & a(0)+b(5)\\ c(2)+d(0) & c(0)+d(5)\end{bmatrix}\\&=\begin{bmatrix}2a & 5b\\ 2c & 5d\end{bmatrix}\end{aligned}$$

Therefore, $AD = \begin{bmatrix} 2a & 5b \\ 2c & 5d \end{bmatrix}$

From *AD,* we observe that the first column of *AD* is 2 times the first column of *A* and the second column of *AD* is 5 times the second column of *A*.