$$A = \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix}, B = \begin{bmatrix} 1 \\ 0 & 0 \end{bmatrix}$$

$$AB = \begin{bmatrix} 1 \\ 0 & 0 \end{bmatrix}$$

$$AB = \begin{bmatrix} 1 \\ 0 & 0 \end{bmatrix}$$

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