Practice: AB=0 When A and B Are Not zero

Let $\mathrm{A} = \begin{pmatrix} -1 & 2 \\ 4 & -8 \end{pmatrix}$. Construct a two-by-two matrix B such that AB is the zero matrix. Use two different nonzero columns for B.

$$\begin{pmatrix} -1 & 2 \\ 4 & -8 \end{pmatrix}\begin{pmatrix} B \end{pmatrix} = \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$$

$$\begin{pmatrix} 2 & 8 \\ 1 & 4 \end{pmatrix}$$

$$\begin{pmatrix} -1\cdot 2 + 2\cdot 1 & -1\cdot 8 + 2\cdot 4 \\ 4\cdot 2 + -8\cdot 1 & 4\cdot 8 + (-8\cdot 4) \end{pmatrix}$$

$$\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$$