

Suppose

$$M = \begin{pmatrix} \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \end{pmatrix}$$

What is $M_{\underline{u}}$ when

$$\underline{u} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$