

16.1.1:

$$\begin{bmatrix} 1 & 1 \\ 2 & 0 \end{bmatrix} \begin{bmatrix} 1 \\ \frac{1}{\sqrt{2}} \\ \frac{1}{\sqrt{2}} \end{bmatrix} = \begin{bmatrix} \frac{2}{\sqrt{2}} \\ \frac{2}{\sqrt{2}} \end{bmatrix}$$

16.1.3: $\begin{bmatrix} 1 & 1 \\ 2 & 0 \end{bmatrix} \begin{bmatrix} 1/\sqrt{2} \\ 1 \end{bmatrix} = \begin{bmatrix} 1 + 1/\sqrt{2} \\ 2/\sqrt{2} \end{bmatrix} \times$