$$\left[\begin{array}{c}\sqrt{1/2}\\\\\sqrt{1/2}\end{array}\right]$$

$$\left[\begin{array}{c} 1/3\\ \sqrt{8}/3 \end{array}\right]$$

$$\left[\begin{array}{c} (2-i)/3\\ 2i/3 \end{array}\right]$$

 $\sqrt{1/2} |0\rangle + \sqrt{1/2} |1\rangle$ 

 $1/3 |0\rangle + \sqrt{8}/3 |1\rangle$ 

 $(2-i)/3 |0\rangle + 2i/3 |1\rangle$