$\langle 0|\psi\rangle =$

c)

$$\langle 0|\left(\left(\frac{1}{2}+\frac{i}{2}\right)|0\rangle + \left(\frac{1}{2}-\frac{i}{2}\right)|1\rangle\right)$$

$$\frac{1}{2}+\frac{i}{2}\langle 0|0\rangle + \frac{1}{2}-\frac{i}{2}\langle 0|1\rangle$$

$$\langle 0|\psi\rangle = \frac{1+i}{2} //$$

$\langle 1|\psi\rangle =$

$$\langle 1|\left(\left(\frac{1}{2}+\frac{i}{2}\right)|0\rangle + \left(\frac{1}{2}-\frac{i}{2}\right)|1\rangle\right)$$

$$\frac{1}{2}+\frac{i}{2}\langle 1|0\rangle + \left(\frac{1}{2}-\frac{i}{2}\right)\langle 1|1\rangle$$

$$\langle 1|\psi\rangle = \frac{1-i}{2} //$$