

## 1 Phase 2

Consider the three quantum states:

$$|\psi_1\rangle = \frac{4}{5}|+\rangle + i\frac{3}{5}|-\rangle$$

$$|\psi_2\rangle = \frac{4}{5}|+\rangle - i\frac{3}{5}|-\rangle$$

$$|\psi_3\rangle = -\frac{4}{5}|+\rangle + i\frac{3}{5}|-\rangle$$

- (a) For each of the  $|\psi_i\rangle$  above, calculate the probabilities of spin component measurements along the  $x$ ,  $y$ , and  $z$ -axes.
- (b) *Look For a Pattern (and Generalize)*: Use your results from (a) to comment on the importance of the overall phase and of the relative phases of the quantum state vector.