

The Observable Postulate says: “A physical observable is represented mathematically by an operator  $\hat{A}$  that acts on kets.” (McIntyre Postulate #2, p.27)

The Measurement Postulate says: “The only possible result of a measurement of an observable is one of the eigenvalues  $a_n$  of the corresponding operators  $\hat{A}$ .” (McIntyre Postulate #3, p.27)

Use the eigenvalue equation to construct the spin-1/2 operators  $\hat{S}_z$ ,  $\hat{S}_x$ , and  $\hat{S}_y$  - each written in the  $S_z$  basis - so that

- the results of spins measurements along the indicated direction are the eigenvalues
- the possible states after the measurement made along the indicated direction is made are the eigenvectors