

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