

1. Prove that kinetic energy operator is Hermitian.
2. Calculate the probability current density for periodic motion of free particle in one dimensional space.
3. Operators are commute :
 - a.) \hat{p}_x and \hat{p}_y ?
 - b.) \hat{p}_x^2 and \hat{p}_y ?
 - c.) \hat{p}_x and \hat{y} ?
 - d.) \hat{p}_x and \hat{p}_y ?
 - e.) \hat{p}_x and \hat{x}^2 ?
8. The angular momentum operator looks like this $\hat{L} = \hat{r} \times \hat{P}$. How is looks like operators $\hat{L}_x, \hat{L}_y, \hat{L}_z$?
9. Is operators \hat{L}_x and \hat{x} are commute?
10. Is operators \hat{L}_x and \hat{L}_y are commute?