

Problems

Prove the following

a) $[x, p_x] = i\hbar$

b) $[x, p_y] = 0$

c) $[x, H] = i\hbar \frac{\hat{p}}{m}$

d) $\frac{d}{dt}\langle x \rangle = \frac{\langle p \rangle}{m}$

e) The operator \hat{p}_x is Hermitian.