

Physics 262: Homework 21
10 points

Problem 1 (1 point)

Consider a particle of mass m moving in the x -direction with speed $v = \frac{\omega}{k}$, which is the speed of a wave described by the particle's wave function $\psi(x, t) = A \exp[ik(x - \frac{\omega}{k}t)]$. Show that v is half the classical value $\frac{p}{m}$. What is the discrepancy?

Problem 2: (1 point)

A particle is trapped in a one dimensional box of length L . It is equally likely to be found in the lowest 3 energy levels (and never found in higher levels.) What is $\psi(x)$? What is $\int_0^L |\psi(x)|^2 dx$?

Problem 3 (1 point)

Y&F 39.41

Problem 4 (1 point)

Y&F 39.55

Problem 5 (1 point)

Y&F 39.60

Problem 6 (1 point)

Y&F 39.63

Problem 7 (1 point)

Y&F 40.2

Problem 8 (1 point)

Y&F 40.17

Problem 9 (1 point)

Y&F 40.26

Problem 10 (1 point)

Y&F 40.30