

1 Wavefunctions

Consider the following wave functions (over all space - not the infinite square well!):

$$\psi_a(x) = Ae^{-x^2/3}$$

$$\psi_b(x) = B \frac{1}{x^2+2}$$

$$\psi_c(x) = C \operatorname{sech}\left(\frac{x}{5}\right) \text{ (“sech” is the hyperbolic secant function.)}$$

In each case:

- (a) normalize the wave function,
- (b) find the probability that the particle is measured to be in the range $0 < x < 1$.