# 1 Wavefunctions

Consider the following wave functions (over all space - not the infinite square well!):
$\psi_a(x) = Ae^{-x^2/3}$
$\psi_b(x) = B\frac{1}{x^2+2}$
$\psi_c(x) = C \text{ sech}\left(\frac{x}{5}\right)$ ("sech" is the hyperbolic secant function.)
In each case:

(a) normalize the wave function,

(b) plot the wave function using Mathematica or other computer plotting tool (be sure to include the code you used and label your plots/axes appropriately),

(c) find the probability that the particle is measured to be in the range $0 < x < 1$.