1 Wavefunctions

Consider the following wave functions, each describing a particle in one dimension and defined over all space (i.e., $-\infty < x < \infty$), not confined to an infinite square well.

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

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

For each wave function:

(a) Determine the normalization constant.

(b) If the particle's position is measured, what is the probability of finding it in the region $0 < x < 1$?