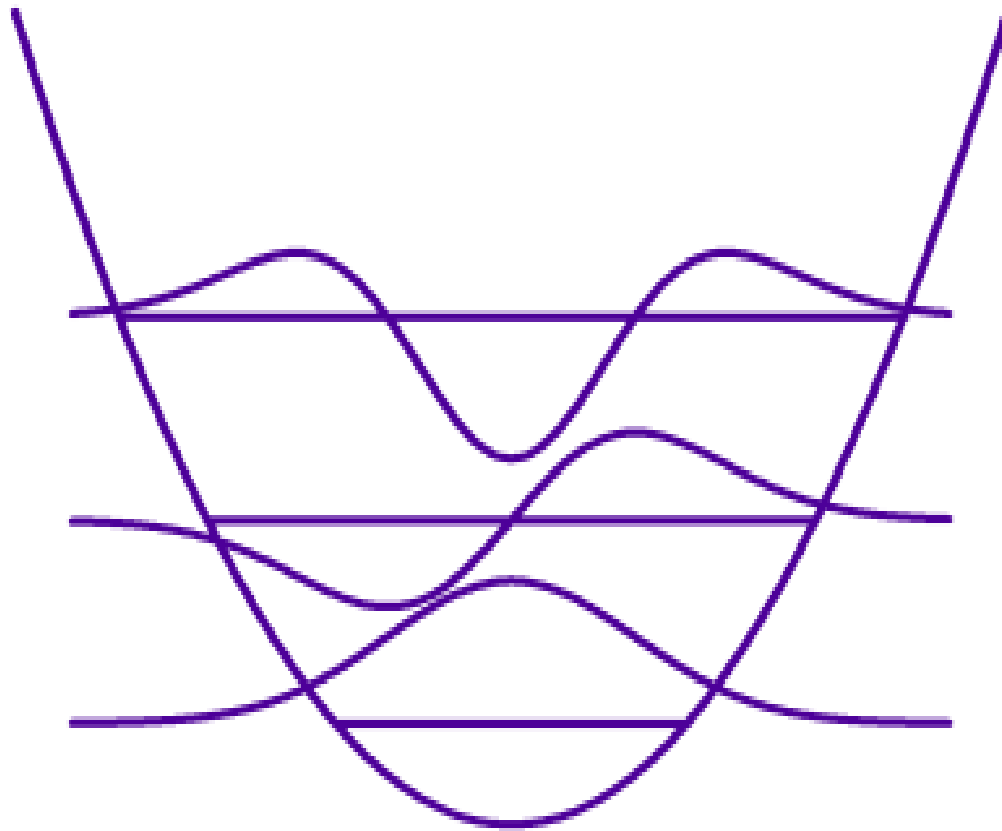# Normalization of a harmonic oscillator wave function

Normalization of a harmonic oscillator wave function

We have discussed the normalization of the v = 0 harmonic oscillator wave function in class. In this problem you are asked to determine the normalization constant for the v = 1 harmonic oscillator wave function. Given that the wave function is:

$$\chi_1 = N_1 2\sqrt{\alpha} Q e^{-\frac{\alpha Q^2}{2}}$$