

**Problem 10.1\***

1. Part a seems like a lot of work with little to be learned. Just accept that the eigenfunctions are correct.
2. Complete parts b and c.
3. Instead of completing part d, plot the probability of finding the particle going into the  $n = 2$  state as a function of  $\alpha$ . Find the maximum probability of transitioning to the  $n = 2$  state and the value of  $\alpha$  at which it occurs. Explain why the curve is close to zero for small  $\alpha$  and large  $\alpha$ .