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| CHEM 3322: Physical Chemistry II | Jonathan Riezman |
| Meeting 4 Quick Problems | 1/29/21 |

1a) 9.4158198 x 10-33 m

b) 1.65382337 x 10-4 m

2a-i) so (i) is not an eigenfunction of (a) because the operator does not return a scalar multiple of the input function.

a-ii) so (ii) is an eigenfunction of (a) with eigenvalue -3.

b-i) so (i) is an eigenfunction of (b) with eigenvalue -9.

b-ii) so (ii) is an eigenfunction of (b) with eigenvalue 9.

3) Consider a particle in a 1D box of length a. Since the particle exists, we know that the probably of finding the particle in the interval x = (0, a) is 1. Thus where the wave function is given as thus

for the particle.

4) (1.7320508, 45° = 0.785398163 radians, 54.7356103° = 0.955316618 radians)