

PHYS:4761 Homework #10

Reading: Read Arfken, Weber, & Harris, Chapter 9, Sections 9.4–9.8 (p. 414–445)

Due at 5:00pm, Friday, November 13, 2020.

Homework Problems:

1. (10 pts) Chapter 9, Exercise 9.3.1
2. (15 pts) Chapter 9, Exercise 9.4.2
3. (15 pts) Chapter 9, Exercise 9.4.6

NOTE: Take the operator to be

$$\mathbf{L}^2 = -\frac{1}{\sin\theta} \frac{\partial}{\partial\theta} \left(\sin\theta \frac{\partial}{\partial\theta} \right) - \frac{1}{\sin^2\theta} \frac{\partial^2}{\partial\phi^2}$$

4. (15 pts) Chapter 9, Exercise 9.4.7
5. (15 pts) Chapter 9, Exercise 9.6.1
6. (15 pts) Chapter 9, Exercise 9.6.4
7. (15 pts) Chapter 9, Exercise 9.7.1