

Problem Set 1

1 Readings

1.1 Monday, September 11, 2006

Griffiths, 1.1.1-1.1.4

1.2 Tuesday, September 12, 2006

Griffiths, 1.2.1-1.2.7

1.3 Wednesday, September 13, 2006

Griffiths, 1.3.1-1.3.6, 1.4.1-1.4.2

1.4 Thursday, September 14, 2006

Griffiths, 1.5.1-1.5.3, 1.6.1-1.6.2

2 Problems

Problems 2 through 8 are from Griffiths

1. Index Notation and Vector Triple Product

- (a) Show that $\epsilon_{ijk}\epsilon_{lmk} = \delta_{il}\delta_{jm} - \delta_{im}\delta_{jl}$. (Hint: Examine individual cases for the indices i, j, l, m)
- (b) Use this result and index notation to show $\vec{A} \times (\vec{B} \times \vec{C}) = (\vec{A} \cdot \vec{C})\vec{B} - (\vec{A} \cdot \vec{B})\vec{C}$. This is similar to the example we did Monday in class.

2. 1.29

3. 1.43

4. 1.45

5. 1.46

6. 1.55

7. 1.60

8. 1.62