HW08 PHYS4112 Assigned: THU 22 OCT 09, Due: THU 29 OCT 09

1. Boas Problem 12.1.4, page 564.

2. Boas problem 12.2.3, page 567. Then change the variable *x* into cosine of theta and plot them again as a function of theta. (Hint: Do problem 4, below, first.)

3. Boas problem 12.3.5, page 568.

4. Boas problem 12.4.3, page 569.

5. Boas problem 12.4.4, page 569. Then find a formula for the answer for the case m = ℓ. (Hints: Use speed integration by parts. The answer for the case m = ℓ is <u>not</u> zero. Use speed integration by parts to generate one formula for the case m = ℓ is even versus another formula for m = ℓ is odd. Then check the formulas by directly integrating the definite integral in Mathematica for m = ℓ = 0, 1, 2, 3, 4, 5 and comparing the results.

6. Boas problems 12.5.3 & 12.5.4, pages 573–574.

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