

Assignment 5
PHGN361

Homework due Feb. 15

1. Chapter 3 problems 5 (this should get you the result at the top of page 120 and then the rest follows from there),
15 (your answer should be a double sum over odd integers; follow example 3.5),
17 (we got the answers in chapter 2),
19,
22 (you should get the following as the last B coefficient $B_5 = \frac{\sigma_0}{\epsilon_0} R^7 / 16$ and the following as the last A coefficient $A_5 = \frac{\sigma_0}{\epsilon_0 R^4} \frac{1}{16}$),
23 (the solution should have a constant + $\ln(s)$ + sum on $\cos(k\phi)$ and $\sin(k\phi)$ with coefficients of s^k and s^{-k}),
24 (follow ex 3.8 but with different coordinate system).
2. Explain in words how you would find the capacitance per unit length of an infinite square metal channel inside a larger square metal channel. You found the voltage for this problem in the last assignment using an Excel spreadsheet.