

Physics 385, Fall 2007  
Electromagnetism (I); Grader Yi Zhang

Prof. Bartynski  
**Due Mon. 29-Oct. 2007**

## PROBLEM SET 7

Reading: Griffiths, Chapter 3.1-3.3

1. Consider the configuration of Fig. 3.17 of Example 3.3 on Pg. 128 of Griffiths. The potential on the strip,  $V(y)$ , is given by  $V(y) = V_o * P_2(\sin \frac{\pi y}{a})$ , where  $P_2$  is the  $l = 2$  Legendre polynomial. Find the potential in the “slot.”
2. Griffiths 3.14
3. Griffiths 3.18
4. The potential on a thin spherical shell of radius  $R$  is fixed at  $V_o \cos(4\theta)$ . Find expressions for the potential in the regions  $r \leq R$  and  $r \geq R$ ?