

ME 565 WINTER 2008

Homework Set # 6

due Friday, February 29 (in-class)

due Monday, March 2 (EDGE)

1. Read Section 5.8 of Kreyszig and do Problems # 1, # 2 in that section.

2. Find the steady-state temperature in a solid hemisphere

$$0 \leq r \leq b, 0 \leq \phi \leq \pi, 0 \leq \theta \leq 2\pi$$

if the planar base is held at zero temperature while the hemispherical portion is kept a constant temperature 100.

3. Section 12.10 #8

4. Time-dependent boundary conditions: Solve

$$u_t = u_{xx}$$

with boundary conditions $u(0, t) = 0$, $u(L, t) = t$ and $u(x, 0) = 0$.