

Physics 3150 Methods of Theoretical Physics Spring 2009 - Problem Set 10
Due Friday, May 1

1. Find the steady-state temperature distribution in a metal plate 20 cm square if one side is held at 200° and the other 3 sides at 0° . (Hint: use Eq. 13.2.17, suitably modified to take into account the different non-zero temperature and plate size. Also, take a look at the answer to Problem 13.2.10.) Find the temperature $T(10,10)$ at the center of the plate. Note: when calculating the temperature at center, use only the first term in the series. What is the ratio of the second term to the first term?

2. Problem 13.2.11

3. Problem 13.3.6