PHY 322: Electromagnetic Fields - Fall 2004

Midterm II
November 10, 2004

Please print your name here:

For the grader:

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Problem 1: \hspace{1cm} (10 points)

Find the potential inside the two dimensional "box" subject to the boundary conditions given below.
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Problem 2: (15 points)

There is a spherical cavity of radius $R$ in a uniform dielectric medium with relative dielectric constant $\kappa \equiv \varepsilon / \varepsilon_0$. In the dielectric far from the cavity, there is a constant electric field $\vec{E} = E \hat{z}$.

(i) Find the potential inside the cavity.
(ii) Find the electric field inside the cavity.
Blank space for Problem 2