APM 346, Homework 6. Due Wednesday, June 19, at 6.00 AM EDT. To be marked completed/not completed.

1. Solve the following boundary-value problem on the region $\{(\rho, \phi, z) | \rho < 1, 0 < z < 1\}$ in cylindrical coordinates:

$$\nabla^2 u = 0, \qquad u|_{\rho=1} = 0, \qquad u|_{z=0} = 0, \qquad u|_{z=1} = 1.$$

2. The same as 1, except with the condition $u|_{z=1} = 1$ replaced by $u|_{z=1} = \rho \cos \phi$.