1. Jackson Problem 2.2

2. Jackson Problem 2.7

3. Jackson Problem 2.10

4. Image charges and Green's function for cylinder.
   (i) A line charge with linear charge density $\tau$ is located at position $(\rho', \phi')$ and is
       placed parallel to and inside a grounded conducting cylinder of radius $b$, where the
       origin is on the axis of the cylinder. Find the magnitude and position of the
       image charge(s).
   (ii) Find the potential at any point $(\rho, \phi)$ inside the cylinder when the line charge $\tau$
       is at point $(\rho', \phi')$.
   (iii) Use your results from parts (i) and (ii) to find the Green's function for the interior
         Dirichlet problem of a cylinder of radius $b$. Show it can be written in closed form
         as either of the expressions given by Jackson in Problem 2.18(a).
   (iv) Problem 2.18 (b).
   (v) Problem 2.18 (c).