## Problems of the Week 3

Always show your work to receive credit (NO WORK=NO CREDIT)

1. Calculate the electric field at the point $P$ on the axis of the annulus shown below, which has surface charge density $\sigma=\sigma_{0} r$.

2. Calculate the electric potential at the point $P$ on the axis of the annulus shown below, which has surface charge density $\sigma=\sigma_{0} r$.
3. Use the result of problem 2 and the fact that $E=-d V / d x$ to calculate the electric field at the point $P$. To receive one point on this problem verify, that your answer here is the same as in problem 1.
