EE331 — Homework #10 / Due Wednesday, Apr. 1, 2020 **at the beginning of class**

1. A circular area of charge in free space with a radius of 2 m is centered at the origin in the $z = 0$ plane. It carries a charge of ρ μC/m^2. Find **E** along the z axis.

2. Ch. 4, Prob. 4.30.

3. (a) Ch. 4, Prob. 4.46, and (b) use Maxwell's second equation for electrostatics to show **E** in part (a) is conservative.

4. A circular disk of radius a carries a charge $\rho_S = \dfrac{1}{\rho}$ C/m^2. Calculate the potential V at $P(0, 0, h)$.

5. Find the electric field **E** for the potentials (a) $V = 10\rho^2 \sin\phi + 6\rho z$ V and (b) $V = 5r^2 \cos\theta \sin\phi$ V.