Physics 430: Problem Set #5

Due Thursday, Feb. 28, 2019, 10:35 am (in class)

• Please read Chapter 2;

• All problems are from David Griffiths: Introduction to Electrodynamics, 3rd Edition.

1. Page 82, Problem 2.22;

2. Page 87, Problem 2.28;

3. Page 93, Problem 2.31;

4. Page 95, Problem 2.32(b);

5. Page 101, Problem 2.35;

6. Page 107, Problem 2.46 (Note that $\nabla \cdot \frac{\mathbf{E}}{r^2} = 4\pi \delta^3(\mathbf{r})$);

7. An infinitely large and thin conductor with uniform surface charge density $\sigma$ is located at $z = 0$ (i.e., $x - y$ plane), and another infinite sheet with charge density $-\sigma$ is located at $z = 4$ m. Find the electric field in each of the three regions: (i) $z < 0$, (ii) $0 < z < 4$ m, (iii) $z > 4$ m.