Homework 8
EE 381 Electric & Magnetic Fields (Fall 2026)
Friday, October 16, 2026

1) PE4.7
2) 4.1
3) 4.7
4) 4.8
5) 4.15 Hint: Use gradient to find unit vector normal to plane.
6) A flat circular ring, located at $0.02\text{ m} < \rho < 0.05\text{ m}$, $z = 0.1$ m in free space, has a uniform surface charge density of $-2\ \mu\text{C/m}^2$. Find the electric field and electric flux density vector at the point $\rho = 0$, $z = -0.2$ m. Sketch the problem geometry, including field and position vectors. If a 1 μC point charge is placed at this point, what force does it experience?
7) 4.21 Hint: To make math easier, Rotate coordinates so that cylindrical coordinates 'fit' problem. Solve. Then, rotate answer back to original coordinates.
8) 4.22

Due Wednesday, October 21, 2026.

Note: Unless otherwise specified assume units of meters for distances, lengths, and/or positions.