Homework 7
EE 381 Electric & Magnetic Fields (Fall 2025)
Wednesday, October 8, 2025

1) PE3.11 Use units of *U* (Utes), *V* (vans), and *f* (flowers).
2) Directly evaluate the net outward flux of $\overline{B} = \frac{4}{\rho}\hat{a}_\rho + \frac{7}{z}\hat{a}_z$ (mWb/m^2) through the cylinder defined by $\rho = 2$ m and $1 \le z \le 3$ m. Can the divergence theorem be used? Explain why/why not. Regardless, evaluate $\iiint_v \overline{\nabla} \bullet \overline{B}\, dv$ and compare.
3) 3.35 Text typo: $\overline{H} = 2xy\,\hat{a}_x + (x^2 + z^2)\,\hat{a}_y + 2yz\,\hat{a}_z$. Use units of (hobs/m^2).
4) 3.45 modified so *L* bounds the area $1 \le \rho \le 3$ m, $0 \le \phi \le \pi/2$. Verify Stoke's theorem by evaluating circulation using both sides of Stoke's theorem. Use units of (ants/m).
5) 3.51 Also, c) Is $\overline{H}$ solenoidal? Why/why not?, and d) Is $\overline{H}$ irrotational (conservative)? Why/why not? Use units of (huts/m).
6) 3.60 Use units of (vats).

Due Wednesday, October 15, 2025

- If not otherwise specified, give all angles in degrees.
- If not otherwise specified, assume units of meters for all positions and distances.