

PHYS 333 — Problem Set #1

Due before class Wednesday, August 30

1. Griffiths 1.7
2. Using arrows of appropriate relative magnitude and direction, sketch a representative set of vectors for each of the following vector fields:
 - (a) $\mathbf{f}(\mathbf{r}) = -y \hat{\mathbf{x}} + x \hat{\mathbf{y}}$
 - (b) $\mathbf{g}(\mathbf{r}) = (-y \hat{\mathbf{x}} + x \hat{\mathbf{y}})/(x^2 + y^2)$
 - (c) $\mathbf{h}(\mathbf{r}) = \hat{\mathbf{x}} + \hat{\mathbf{y}}$
3. Griffiths 1.11
4. Griffiths 1.13 — Hint: take x -derivatives first, and then try to generalize.
5. Griffiths 1.15
6. Griffiths 1.18
7. Griffiths 1.20a
8. Griffiths 1.25
9. Griffiths 1.26
10. Griffiths 1.27