

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF PHYSICS
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ADDENDUM TO PROBLEM SET 1

2. In part (h) of this problem, I ask you to calculate the quantities $\nabla_{\vec{U}}\rho$ and $\nabla_{\vec{D}}\rho$. Unfortunately, I neglected to define what this means! This notation $\nabla_{\vec{V}}$ means “the gradient along the vector field \vec{V} ,” and is defined by

$$\nabla_{\vec{V}}\rho = V^\alpha \partial_\alpha \rho .$$

This notation is not used very much, so I decided to phase it out of notes this semester. Unfortunately, I forgot that I used it on this problem on the pset. My apologies!