

PHYS3122A Homework 4, due 09/25/2009 at 5pm:

- 1) Solve problems 2.9, 2.10, 2.11, 2.13, 2.14, 2.16, 2.17, 2.18, 2.20
- 2) Show that

$$-\int_{\infty}^{\vec{r}} d\vec{l}' \vec{E}(\vec{r}') = \frac{1}{4\pi\epsilon_0} \int \frac{\rho(\vec{r}')}{|\vec{r} - \vec{r}'|} d\vec{r}'$$

Where

$$\vec{E}(\vec{r}) = \frac{1}{4\pi\epsilon_0} \int \frac{\rho(\vec{r}')(\vec{r} - \vec{r}')}{|\vec{r} - \vec{r}'|^3} d\vec{r}'$$