

1 Gradient Point Charge

Consider the fields at a point \vec{r} due to a point charge located at \vec{r}' .

- (a) Write down an expression for the electrostatic potential $V(\vec{r})$ at a point \vec{r} due to a point charge located at \vec{r}' . (There is nothing to calculate here.)
- (b) Write down an expression for the electric field $\vec{E}(\vec{r})$ at a point \vec{r} due to a point charge located at \vec{r}' . (There is nothing to calculate here.)
- (c) Working in rectangular coordinates, compute the gradient of V .
- (d) Write several sentences comparing your answers to the last two questions.