

# *E from V*

If we can get the potential by integrating the electric field:

$$\Delta V_{a \rightarrow b} = - \int_a^b \vec{E} \cdot d\vec{l}$$

We should be able to get the electric field by differentiating the potential?

$$\vec{E} = -\vec{\nabla} V$$

In Cartesian coordinates:

$$E_x = -\frac{\partial V}{\partial x}$$

$$E_y = -\frac{\partial V}{\partial y}$$

$$E_z = -\frac{\partial V}{\partial z}$$

