



$$\Delta V = V_B - V_A = - \int \vec{E} \cdot d\vec{s} = - \vec{E} \cdot \vec{s}$$

$$\vec{s} = \text{vector from } A \rightarrow B = 10\hat{j} \text{ cm} = 0.1\hat{j} \text{ m}$$

$$\text{So } \Delta V = - \vec{E} \cdot \vec{s} = - \{ (20,000)(0) + (-50,000)(0.1) \}$$

$$\underline{\Delta V = +5000V}$$