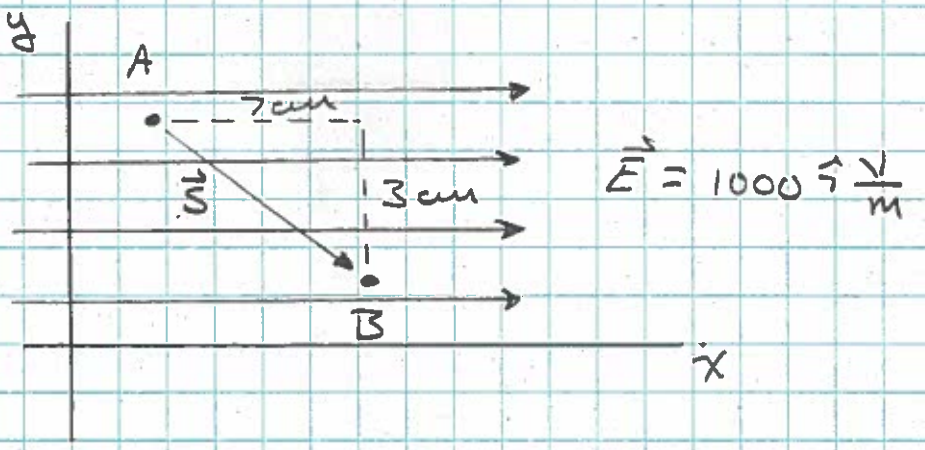

a.) The field points "downhill," i.e. high to low potential

So, $V_A > V_B$

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

where $\vec{s} = 0.07\,\hat{i} - 0.03\,\hat{j}$ m

So $\Delta V = -\{(1000)(0.07) + (0)(-0.03)\}$

$= -70\,V$