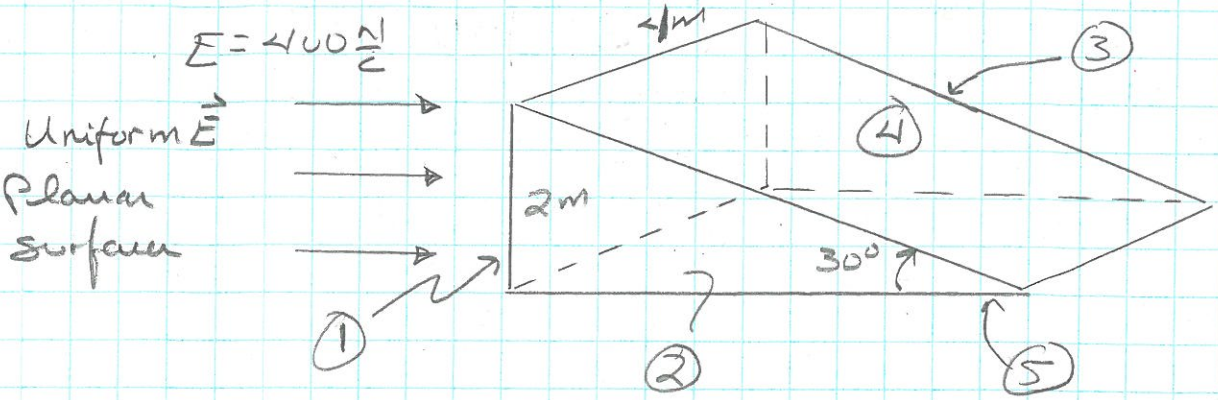
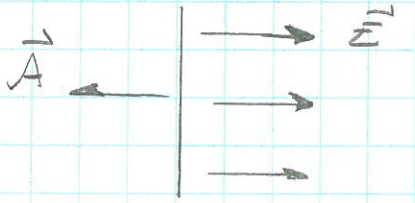


NOTE: Φ_2, Φ_3, & $\Phi_5 = 0$ since $\vec{E}$ is parallel to these surfaces.

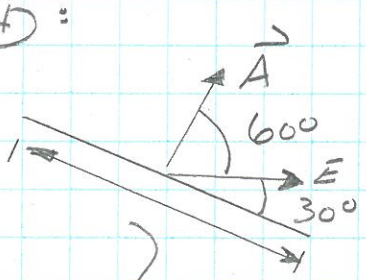
For surface (1): $A = 2 \times 4 = 8\,m^2$

$$\Phi_1 = \int \vec{E} \cdot d\vec{A} = EA\cos(180°) = -3200 \frac{Nm^2}{C}$$

where:



For surface (4):



$$= \frac{2m}{\sin 30°} = 4m \Rightarrow A = 16\,m^2$$

$$\Phi_4 = \int \vec{E} \cdot d\vec{A} = \vec{E} \cdot \vec{A} = EA\cos 60°$$

$$= +3200 \frac{Nm}{C^2}$$

Or, an easier way:

Since no charge inside

$$\Phi_{net} = \Phi_1 + \cancel{\Phi_2} + \cancel{\Phi_3} + \Phi_4 + \cancel{\Phi_5} = 0 \Rightarrow \Phi_4 = -\Phi_1 = \underline{+3200 \frac{Nm^2}{C}}$$