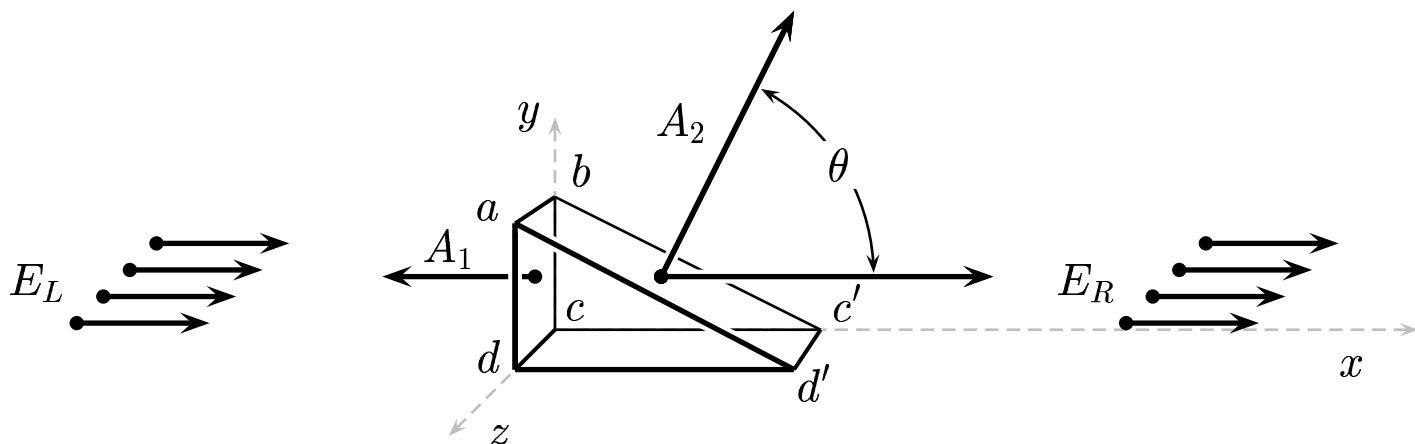


Given: A constant electric fields \vec{E} along the x -direction.

The first rectangle $abcd$ has an area A_1 perpendicular to \vec{E} . The second rectangle $abc'd'$ has an area A_2 and it is inclined with an angle $\angle_{dad'} = \theta$.



Find Φ_2 , the flux due to the field \vec{E} through the second rectangle $abc'd'$.

A) $\Phi_2 = E A_2$

B) $\Phi_2 = E A_2 \cos \theta$

C) $\Phi_2 = E A_1 \cos \theta$

D) $\Phi_2 = E A_2 \sin \theta$

E) $\Phi_2 = E A_1 \sin \theta$

For the second rectangle, the projection of its area which is perpendicular to \vec{E} is

$$A_{\perp} = \text{area}_{abc'd'} = A_2 \cos \theta .$$

Answer **B**.