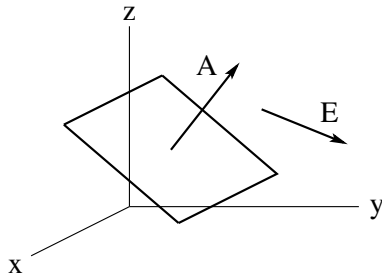Consider a plane sheet of paper whose orientation in space is described by the area vector $\vec{A} = (3\hat{j} + 4\hat{k})\text{m}^2$ positioned in a region of uniform electric field $\vec{E} = (1\hat{i} + 5\hat{j} - 2\hat{k})\text{N/C}$.

(a) Find the area A of the sheet.

(b) Find the magnitude E of the electric field $\vec{E}$.

(c) Find the electric flux Φ_E through the sheet.

(d) Find the angle θ between vectors $\vec{A}$ and $\vec{E}$.

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