

Vector Integrals

Scott N. Walck

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Three Uses for the Flux Integral

Total current from current density:

$$I = \int_S \vec{J} \cdot d\vec{a}$$

Electric flux from electric field:

$$\Phi_E = \int_S \vec{E} \cdot d\vec{a}$$

Magnetic flux from magnetic field:

$$\Phi_B = \int_S \vec{B} \cdot d\vec{a}$$