

Problems: Flux Through Surfaces

Let $\mathbf{F} = \langle x, y, z \rangle$.

1. Find the flux of \mathbf{F} through the square with vertices $(0, 0, 0)$, $(1, 0, 0)$, $(1, 1, 0)$, $(0, 1, 0)$.
2. Find the flux of \mathbf{F} through the square with vertices $(0, 0, 1)$, $(1, 0, 1)$, $(1, 1, 1)$, $(0, 1, 1)$.
3. Find the flux of \mathbf{F} through the surface $x^2 + y^2 = 1$ with $0 \leq z \leq 1$.

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18.02SC Multivariable Calculus
Fall 2010

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