

Math 241 §BL1

Problem Set 39

- (1) Use Stokes' Theorem to find the work done by the vector field $\vec{F} = \langle -y^2, x, z^2 \rangle$ in moving a particle once counterclockwise around the curve formed by the intersection of the surfaces $y + z = 2$ and $x^2 + y^2 = 1$.
- (2) Use Stokes' Theorem to compute the flux of the curl of $\vec{F} = \langle x^2z, 5x, -yz \rangle$ across the surface Σ which is the part of $z = 9 - x^2 - y^2$ above $z = 0$ oriented upward.