

Problems: Normal Form of Green's Theorem

Use geometric methods to compute the flux of \mathbf{F} across the curves C indicated below, where the function $g(r)$ is a function of the radial distance r .

1. $\mathbf{F} = g(r)\langle x, y \rangle$ and C is the circle of radius a centered at the origin and traversed in a clockwise direction.
2. $\mathbf{F} = g(r)\langle -y, x \rangle$; C as above.
3. $\mathbf{F} = 3\langle 1, 1 \rangle$; C is the line segment from $(0, 0)$ to $(1, 1)$.
4. $\mathbf{F} = 3\langle -1, 1 \rangle$; C is the line segment from $(0, 0)$ to $(1, 1)$.

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