

Using Green's Theorem

1. Show that $\oint_C -x^2y \, dx + xy^2 \, dy > 0$ for all simple closed curves C .
2. Let $\mathbf{F} = 2y\mathbf{i} + x\mathbf{j}$ and let C be the positively oriented unit circle. Compute $\oint_C \mathbf{F} \cdot d\mathbf{r}$ directly and by Green's theorem.

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