1. (10 points) Let $C$ be the circle $x^2 + y^2 = 1$, oriented counterclockwise. Compute the outward flux of $\mathbf{F}(x, y) = x^3 \mathbf{i} + x^2 y \mathbf{j}$ across $C$:

(a) directly, by computing an appropriate line integral

(b) using Green’s theorem