Name: _____

1. Fix $b > a > 0$, and define the singular 2-cube

$$\Phi(r, \theta) = (r \cos \theta, r \sin \theta)$$

for $a \leq r \leq b$, $0 \leq \theta \leq 2\pi$ (with image an annulus). Put $\omega = x dy$, and compute both

$$\int_{\Phi} d\omega \quad \text{and} \quad \int_{\partial \Phi} \omega$$

to verify that they are equal.