

Double integration in polar coordinates

1. Compute $\iint_R f(x, y) dx dy$, where $f(x, y) = \frac{1}{\sqrt{x^2 + y^2}}$ and R is the region inside the circle of radius 1, centered at $(1,0)$.
2. Find the area inside the cardioid $r = 1 + \cos \theta$.

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