

Section: 163Name & Surname: SOLUTION KEY

Math 120 Spring 2017-2018

Quiz no.: 05

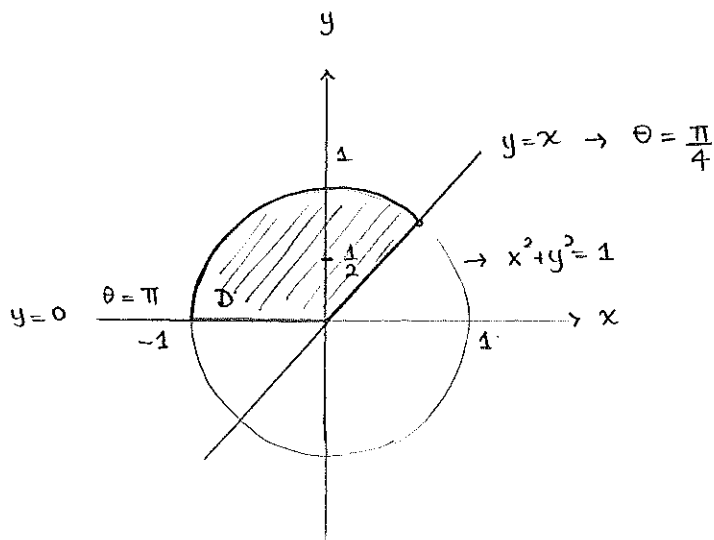
ID Number: _____

Date: 04.05.18

Time Limit: ~15 Minutes

Grade: _____

1. Express the double integral $\iint_{\mathcal{D}} f(x,y) dA$ in polar iterated integrals where \mathcal{D} is the region bounded by $y = 0$, $y = x$ and $x^2 + y^2 = 1$ containing the point $(0, 1/2)$.



In Polar coordinates ;

$$\theta \in \left[\frac{\pi}{4}, \pi \right]$$

$$r \in [0, 1]$$

$$dA = r dr d\theta$$

$$f(x,y) = f(r \cos \theta, r \sin \theta)$$

$$\iint_{\mathcal{D}} f(x,y) dA = \int_{\frac{\pi}{4}}^{\pi} \int_0^1 f(r \cos \theta, r \sin \theta) r dr d\theta$$