

NAME:

PID:

MATH 20C, SECTION A08

December 2, 2014

Quiz 4

Show all your work for full credit. To maximize credit, cross out incorrect work.

No credit will be given for unsupported answers.

1. (10 points) Compute the double integral

$$\iint_{1 \leq x^2 + y^2 \leq 4} \frac{1}{\sqrt{x^2 + y^2}} dA.$$

SOLUTION

Transforming integral into Polar Co-ordinates

$$\begin{aligned} \iint_{1 \leq x^2 + y^2 \leq 4} \frac{1}{\sqrt{x^2 + y^2}} dA &= \int_0^{2\pi} \int_1^2 \left(\frac{1}{r}\right) r dr d\theta \\ &= \int_0^{2\pi} [r]_1^2 d\theta \\ &= \int_0^{2\pi} d\theta \\ &= [0]_0^{2\pi} \\ &= 2\pi // \end{aligned}$$

Good luck!

And some good news: this is the last quiz! ☺