MATH 251 – QUIZ 7

Question 1: *(5 points)*

Calculate the following integral, where D is the region in the first quadrant between the circles $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$

$$\int\int_D y^2 dxdy$$

Question 2: *(5 points)*

Find the volume of the region of intersection of the cylinders $x^2+y^2 = 9$ and $x^2 + z^2 = 9$

Hint: I promise that this is not as bad as you think ☺

First use $x^2 + z^2 = 9$ to get inequalities for z, and then use $x^2 + y^2 = 9$ to get inequalities for y and then for x. Here is it best **not** to use polar coordinates, and instead to do it directly. I have worked out a similar problem in the Lecture 26 notes and in this video.

Date: Friday, October 29, 2021.