

Cylindrical Triple Integral.

Spring 2016

Attendance Quizzes

March 28, 2016

Quiz 22 Cylindrical Triple Integral.

Set up the triple integral to evaluate

$$\iiint_R \sqrt{x^2 + y^2} \, dv$$

where R is the region in three space enclosed by $z = -5$, $z = 1 + 5x$ and $x^2 + y^2 = 9$.

You must use cylindrical coordinates.

Answer:

$$\int_{\theta=0}^{2\pi} \int_{r=0}^3 \int_{z=-5}^{z=1+5\cos(\theta)} r^2 \, dz \, dr \, d\theta = 108\pi$$