

Total score: 11 points

March Boedihardjo © 2021

- Write your solutions on some papers. Scan as a pdf/jpg file(s). Upload the pdf/jpg file(s) as CCLE Assignment Quiz 3 before the end time.
 - Open book. Calculators are not prohibited. But you cannot get any help from other people.
 - Unless specified otherwise, you may compute any integral using Fundamental Theorem of Calculus without using the definition involving Riemann sum.
1. (11 points) Let $W = \{(x, y, z) \mid x^2 + y^2 + z^2 \leq 3, y > x > 0, z > 0\}$. Compute $\int_W z d(x, y, z)$ using
- (i) $\int \int \int dz dr d\theta$ set up.
 - (ii) $\int \int \int d\rho d\phi d\theta$ set up.

2. (0 points) Let $W = \{(x, y, z) \mid x^2 + y^2 + z^2 \leq 3, y > 0, z \geq 1\}$.

- (i) Compute $\int_D z d(x, y, z)$ using $\int \int \int dz dr d\theta$ set up.
- (ii) Compute $\int_D \frac{1}{\sqrt{x^2 + y^2}} d(x, y, z)$ using $\int \int \int d\rho d\phi d\theta$ set up.

Do not submit your answer for Question 2. If you submit your answer for Question 2, the grader will get confused.

End of exam