

WRITE YOUR NAME:

MAC 2313 B51 Spring 2024

Written homework #10

Due THURSDAY March 28th, in Canvas

Question 1. Evaluate the integral by converting to cylindrical coordinates.

$$\int_0^3 \int_{-\sqrt{9-y^2}}^{\sqrt{9-y^2}} \int_0^{9-3\sqrt{x^2+y^2}} dz dx dy$$

Question 2. Evaluate the integral using spherical coordinates.

$$\iiint_D (x^2 + y^2 + z^2)^{5/2} dV$$

where D is the interior of the unit sphere centered at the origin.

Question 3. Find the volume bounded by $x^2 + y^2 = 1$, $z = 0$, and $y + z = 1$.