



Question

What does the following integral compute?

$$\int_{\pi/2}^{\pi} \int_0^{2\pi} \int_0^9 \rho^2 \sin(\phi) d\rho d\theta d\phi$$

- A. The volume enclosed by a hemisphere of radius 9.
- B. The volume enclosed by a hemisphere of radius 3.
- C. The average value of $\rho^2 \sin(\phi)$ over the lower hemisphere of radius 9 centered at the origin.
- D. The average value of $\rho^2 \sin(\phi)$ over the upper hemisphere of radius 9 centered at the origin.