

DarkSharpness

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考虑 (r, θ) 体积微元的贡献为: $dV = dr \cdot r d\theta \cdot 2\pi \cdot r \sin(\theta)$

设 $r = r(\theta)$, 那么体积就是:

$$\int_{r=0}^{r=r(\theta)} \int_{\theta=0}^{\theta=\theta_0} dV$$

先把 r 积出来, 所以

$$V = \int_{\theta=0}^{\theta=\theta_0} \frac{2\pi}{3} r^3 \sin(\theta) d\theta$$