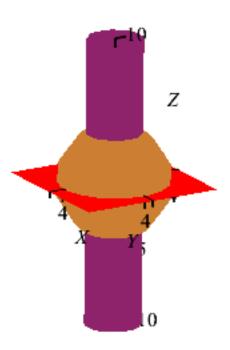
with(plots):

> implicit plot 3d ([
$$x^2 + y^2 + z^2 = 16$$
, $x^2 + y^2 = 4$, $z = 0$], $x = -5$...5, $y = -5$...5, $z = -10$...10, axes = normal, color = [gold, maroon, red], labels = [X, Y, Z])



$$> 2 \cdot \int_0^{2 \cdot \text{Pi}} \int_2^4 \sqrt{16 - r^2} \cdot r \, dr \, d\theta$$

$$32\sqrt{3}\ \pi\tag{1}$$