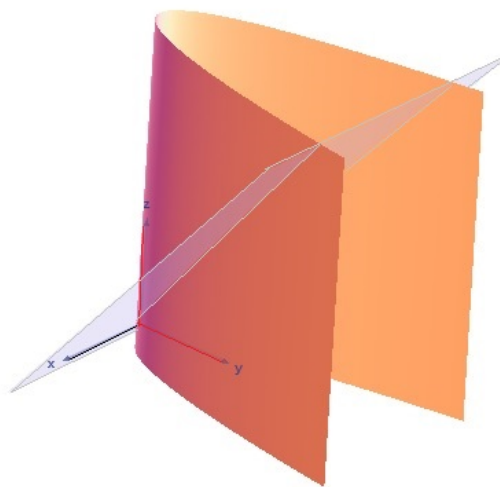


1. Evaluate the integral.

(a)
$$\int_0^\pi \int_0^1 \int_0^{\sqrt{1-z^2}} z \sin x \, dydzdx$$

(b)
$$\int_0^1 \int_0^2 \int_0^{4-x^2-y^2} xye^z \, dzdydx$$

2. There are two ways to represent the volume of the region E , which is bounded by the parabolic cylinder $y = x^2$, and the planes $y = z$, $y = 9$, and $z = 0$ (a partial graph of the region is given in the figure). Represent this volume using both a double integral and also using a triple integral. Use one of these to compute the actual volume.



3. We want to set up the integral $\iiint_E f(x, y, z) dV$, where E is the region bounded by the parabolic cylinder $y = x^2$, and the planes $y = z$, $y = 9$, and $z = 0$ (a partial graph of the region is given in the figure). Set up this integral as a $dx dy dz$ integral and also as a $dx dz dy$ integral.

