Triple Integral Problems
Rectangular Coordinates

Set up the triple integral with limits

Side:
$y = x^2$
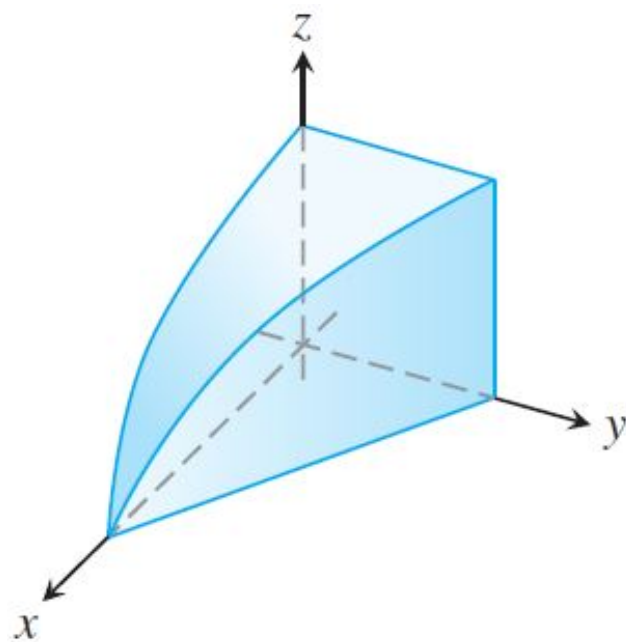
Top: $y + z = 1$

z

1

-1

$(-1, 1, 0)$

1

1

y

x

$(1, 1, 0)$
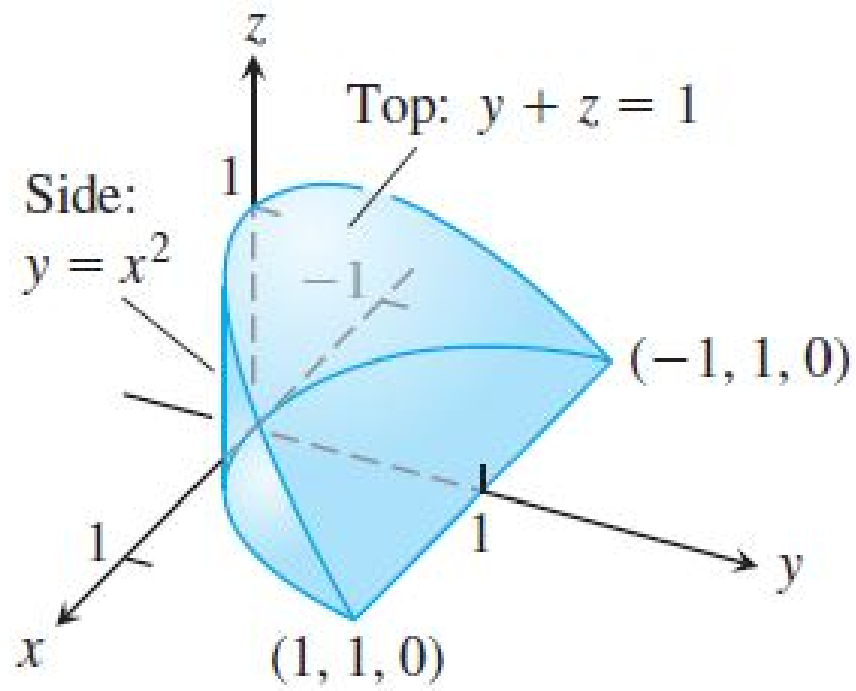
$$z = 4 - x^2 - y$$

Express the volume as a triple integral

$$V = \int_{-2}^{2} \int_{0}^{4-x^2} \int_{0}^{4-x^2-y} dz \, dy \, dx$$
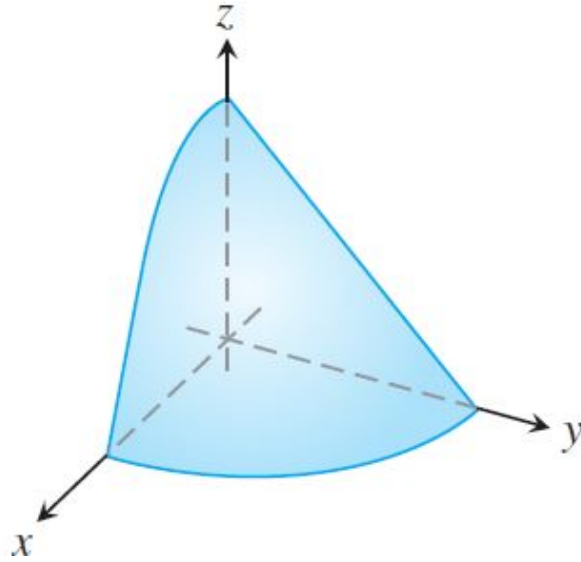
Top is $z = \cos \frac{\pi x}{2}$. Right side is $y = 1 - x$

Top is $y + z = 2$. Right side is $x = 4 - y^2$