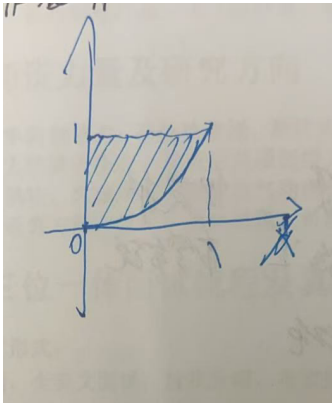


1.  $\int_0^1 \int_{x^2}^1 x \cos(y^2) dy dx$ , (Hint: consider the usage of Fubini's Theorem) (Points will be given if you draw the domain clearly)



1 point

$$I = \int_0^1 \left( \int_0^{\sqrt{y}} x \cos(y^2) dx \right) dy$$

1 point

$$\int_0^{\sqrt{y}} x \cos(y^2) dx = \cos(y^2) \cdot \left[ \frac{1}{2} x^2 \right]_{x=0}^{x=\sqrt{y}}$$

$$= \cos(y^2) \cdot \left( \frac{1}{2} (\sqrt{y})^2 - 0 \right) = \frac{1}{2} y \cos(y^2)$$

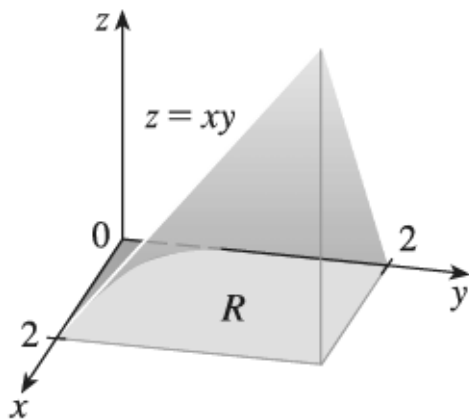
1 point

$$\frac{1}{4} \sin(1)$$

1 point

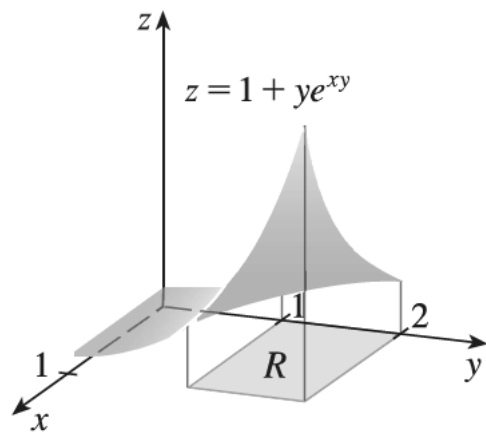
2. Evaluate the iterated integral to find the volume of the solid.

**39.**



**39.** (a)  $\int_0^2 \int_0^2 xy \, dx \, dy$  (b) 4

**41.**



**41.** (a)  $\int_1^2 \int_0^1 (1 + ye^{xy}) \, dx \, dy$  (b)  $e^2 - e$

1 point for write the iterated integral

2 point for calculating the integral