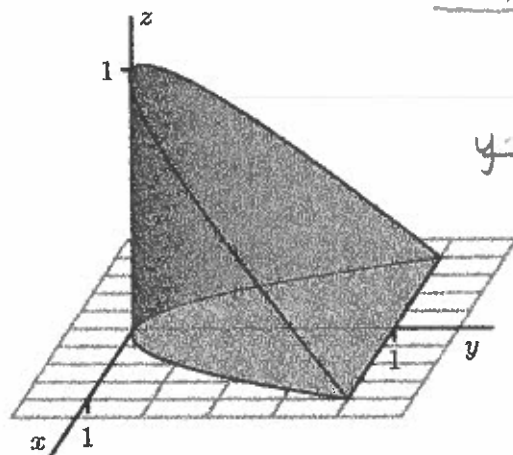


1. Consider the solid E that is bounded by $y = x^2$, $z = 1 - y$ and the xy -plane. Set up three different iterated integrals that represent $\iiint_E f(x, y, z) dV$.

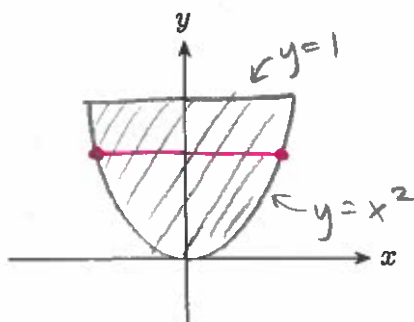


z first: ceiling: $z = 1 - y$
floor: $z = 0$

y first: ceiling: $z = 1 - y$
 $\hookrightarrow y = 1 - z$
floor: $y = x^2$

x first: ceiling: $x = \sqrt{y}$
floor: $x = -\sqrt{y}$

- (a) Draw the projection of E onto the xy -plane and set up an iterated integral using $dV = dz dx dy$.



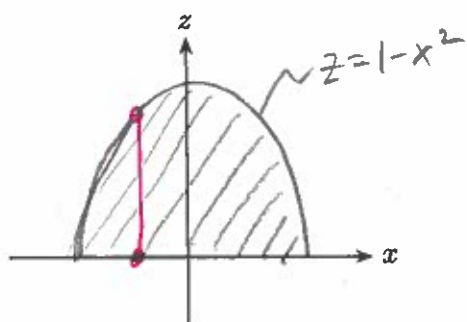
$$0 \leq z \leq 1 - y$$

$$-\sqrt{y} \leq x \leq \sqrt{y}$$

$$0 \leq y \leq 1$$

$$\int_0^1 \int_{-\sqrt{y}}^{\sqrt{y}} \int_0^{1-y} f(x, y, z) dz dx dy$$

- (b) Draw the projection of E onto the xz -plane and set up an iterated integral using $dV = dy dz dx$.



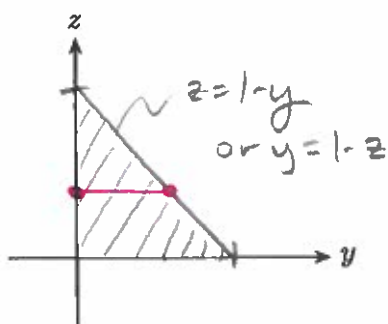
$$x^2 \leq y \leq 1 - z$$

$$0 \leq z \leq 1 - x^2$$

$$-1 \leq x \leq 1$$

$$\int_{-1}^1 \int_0^{1-x^2} \int_{x^2}^{1-z} f(x, y, z) dy dz dx$$

- (c) Draw the projection of E onto the yz -plane and set up an iterated integral using $dV = dx dy dz$.



$$-\sqrt{y} \leq x \leq \sqrt{y}$$

$$0 \leq y \leq 1 - z$$

$$0 \leq z \leq 1$$

$$\int_0^1 \int_0^{1-z} \int_{-\sqrt{y}}^{\sqrt{y}} f(x, y, z) dx dy dz$$