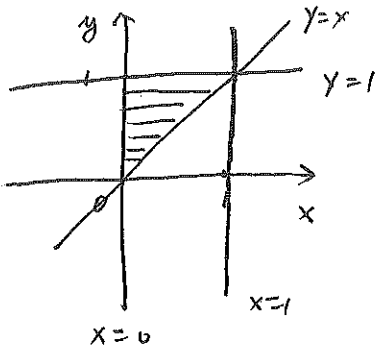Quiz 7.

1.

$$\int_0^1 \int_0^y \frac{x^2}{y^2} \, dx \, dy$$

$$= \int_0^1 \frac{1}{y^2} \cdot \frac{x^3}{3} \Big|_{x=0}^{x=y} \, dy = \int_0^1 \frac{y}{3} \, dy = \frac{1}{6}$$

2. $D = \{ x^2 + y^2 \leq 2 \}$.

$$V = \int_0^{2\pi} \int_0^{\sqrt{2}} (2 - r^2) \, r \, dr \, d\theta = \int_0^{2\pi} \left(r^2 - \frac{r^4}{4} \right) \Big|_0^{\sqrt{2}} \, d\theta = \int_0^{2\pi} 1 \cdot d\theta$$

$$= 2\pi$$