

$$6. \quad z = 3 - y \quad z = 9 - y^2 \quad x = 0 \quad x = 5 \quad y = 0$$

$$V = \int_{x=0}^{x=5} \int_{y=0}^{y=3} \int_{z=3-y}^{z=9-y^2} dz dy dx$$

$$= \int_{x=0}^{x=5} \int_{y=0}^{y=3} [z]_{z=3-y}^{z=9-y^2} dy dx$$

$$= \int_{x=0}^{x=5} \int_{y=0}^{y=3} [9 - y^2 - (3 - y)] dy dx$$

$$= \int_{x=0}^{x=5} \int_{y=0}^{y=3} (-y^2 + y + 6) dy dx$$

$$= \int_{x=0}^{x=5} \left[-\frac{1}{3}y^3 + \frac{1}{2}y^2 + 6y \right]_{y=0}^{y=3} dx$$

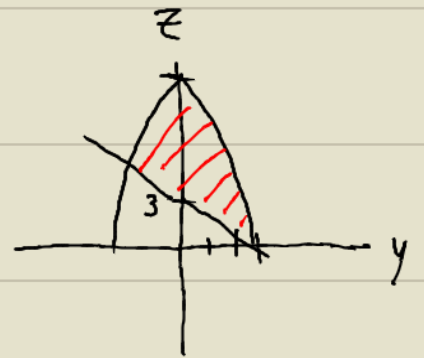
$$= \int_{x=0}^{x=5} \left[-\frac{1}{3} \cdot 3^3 + \frac{1}{2} \cdot 3^2 + 6(3) - \left(-\frac{1}{3}(0)^3 + \frac{1}{2}(0)^2 + 6(0) \right) \right] dx$$

$$= \int_{x=0}^{x=5} \left[-9 + \frac{9}{2} + 18 \right] dx$$

$$= \int_{x=0}^{x=5} \left(9 + \frac{9}{2} \right) dx$$

$$= \frac{27}{2} \int_{x=0}^{x=5} dx$$

$$= \frac{27}{2} [x]_{x=0}^{x=5}$$



$$\begin{array}{ll} z = 3 - y & z = 9 - y^2 \\ 0 = 3 - y & 0 = 9 - y^2 \\ y = 3 & y^2 = 9 \\ & y = \pm\sqrt{9} \\ & y = \pm 3 \end{array}$$

$$\begin{aligned} & \rightarrow = \frac{27}{2} [5 - 0] \\ & = \left(\frac{135}{2} \right) \end{aligned}$$