

$$2) \int_0^1 \int_0^2 \int_0^1 (x^2 + y^2 + z^2) dx dy dz$$

$$\int_0^1 (x^2 + y^2 + z^2) \cdot dy = \left[x^2 y + \frac{y^3}{3} \right]_0^1$$

$$\int_0^1 \left[x^2 + z^2 + \frac{1}{3} \right] \cdot [0] = \int_0^1 \int_0^2 \left(y^2 + z^2 + \frac{1}{3} \right) dy dz$$

$$\int_0^2 \left(y^2 + z^2 + \frac{1}{3} \right) dy = \left[\frac{y^3}{3} + 2z^2 y + \frac{y}{3} \right]_0^2$$

$$\int_0^2 \left(\frac{2}{3} + 2z^2 + \frac{1}{3} \right) dz = \int_0^2 \left[\frac{2}{3} + 2z^2 + \frac{1}{3} \right] dz = \frac{12}{3}$$

4

3) $5x - 2$, no intervalo $-2 \leq x \leq 3$

$$y' = 5 \int_{-2}^3 \sqrt{1 + [5]^2} \cdot dx$$

$$y = \int_{-2}^3 \sqrt{26} \cdot dx = \int_{-2}^3 \sqrt{26} \cdot x \cdot \left[\frac{25}{4950} \right]$$

$$[\sqrt{26} \cdot 3] - [\sqrt{26} \cdot (-2)] = 15,297 + 10,198 =$$

$$\frac{6}{3} \cdot 4$$

$$\frac{8 \cdot 24}{3}$$

$$4) \left. \begin{array}{l} y = f(x) = 4 \\ g(x) = x^2 \end{array} \right\} 4 - x^2 = x^2 - 4 = 0$$

$$\int_0^2 (x^2 - 4) \cdot dx$$

$$\left[\frac{x^3}{3} - 4x \right]_0^2 \rightarrow \left[\frac{2^3}{3} - 4 \cdot 2 \right] - [0]$$

$$\left[\frac{8}{3} - \frac{8}{1} \right] = \frac{16}{3} = \boxed{5,33}$$

5) Dada a integral $\int_0^{2,5} x \cdot dx$

$$\left[\frac{x^2}{2} \right]_0^{2,5} = \left[\frac{(2,5)^2}{2} \right] - [0]$$

$$\left[\frac{6,25}{2} \right] = \boxed{3,125}$$

$$6) y = x^2 \quad [0, 3]$$

$$y = x^2 \quad x = \sqrt{y} = x = y^{1/2}$$

$$V = \pi \int_0^3 [y^{1/2}]^2 \cdot dy$$

$$V = \pi \int_0^3 [y] \cdot dy$$

$$V = \pi \left[\frac{y^2}{2} \right]_0^3 \rightarrow V = \pi \left[\frac{3^2}{2} \right] - [0]$$

$$V = \pi = \frac{9}{2} : \frac{9\pi}{2} = \boxed{14,13}$$

$$7) y = x+6, \quad y = x^2 \quad [0, 3]$$

$$x+6 = x^2$$

$$x^2 - x - 6 = 0$$

$$x+6$$

$$y$$

$$0$$

$$1$$

$$2$$

$$3$$

$$4$$

$$5$$

$$6$$

$$7$$

$$8$$

$$9$$

$$10$$

$$11$$

$$12$$

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$$\int_0^3 (x+6-x^2) \cdot dx =$$

$$\left[\frac{x^2}{2} + 6x - \frac{x^3}{3} \right]_0^3 = \left[\frac{3^2}{2} + 6 \cdot 3 - \frac{(3)^3}{3} \right] - [0]$$

$$\left[\frac{9}{2} + 18 - \frac{27}{3} \right] = \frac{27}{2} = \boxed{13,5}$$