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2SF
Calculo integral

1.-

$$\int_{0.00}^{0.05} 8000x\,dx = 8000\left[\frac{x^2}{2}\right]_{0.00}^{0.03} = \frac{8000}{2}\left[(0.03)^2 - (0.00)^2\right]$$

$$= 4000\left[(0.0009)\right] = 3.6$$

$$\int_{0.03}^{0.04} 8000x\,dx = 8000\left[\frac{x^2}{2}\right]_{0.03}^{0.04} = \frac{8000}{2}\left[(0.04)^2 - (0.03)^2\right]$$

$$= 4000\left[(0.0016) - (0.0009)\right] = 4000\,(0.0007)$$

$$= 2.8$$

2.-

$$K = \frac{50N}{10m} = 5\,N/m \qquad \int_0^{18} 5x\,dx = 5\left[\frac{x^2}{2}\right]_0^{18} = \frac{5}{2}\left[(18)^2 - (0)^2\right]$$

$$= 5/2\,(324) = 810$$

3.-

$$\int_{-2}^{2} 4 - x^2\,dx = 4\left[\frac{x^2}{2}\right]_{-2}^{2} = 4/2\left[(2)^2 - (-2)^2\right] = 4/2\,(4-4)$$

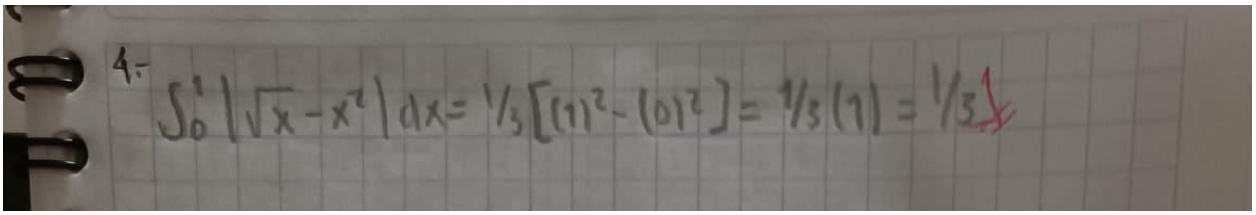
$$= 4/2\,(0) = 0$$

$$y = \frac{\int_{-2}^{2} y/2\,(y\,dx)}{\int_{-2}^{2} y\,dx} = \frac{1}{2}\,\frac{\int_{-2}^{2}(4-x)^2\,dx}{\int_{-2}^{2}(4-x^2)\,dx} = \frac{1}{2}\int_{-2}^{2} 16\,dx - \int_{-2}^{2} 8x^2\,dx + \int_{-2}^{2} x^4\,dx$$

$$\frac{1}{2}\left(\frac{16\left|x\right|_{-2}^{2} - 8\left|\frac{x^3}{3}\right|_{-2}^{2} + \left|\frac{x^5}{5}\right|_{-2}^{2}}{4\left|x\right|_{-2}^{2} - \left|\frac{x^3}{3}\right|_{-2}^{2}}\right) = \frac{1}{2}$$

$$\frac{1}{2}\left(\frac{16(2) - 8\left(\frac{2^3}{3}\right) + 2^5/5}{4(2) - 2^3/3}\right) - \frac{1}{2}\left(\frac{16(-2) - 8\left(\frac{-2^3}{3}\right) + \left(\frac{-2^5}{5}\right)}{4(-2) - 2^3/3}\right)$$

$$\frac{1}{2}\left(\frac{16}{10}\right) - \left(\frac{1}{2}\right)\left(\frac{-16}{10}\right) = \frac{4}{5} + \frac{4}{5} = \frac{8}{5} = (0, 8/5)$$


4.-
$\int_0^1 |\sqrt{x} - x^2| dx = 1/3[(1)^2 - (0)^2] = 1/3(1) = 1/3$