

Examen 4 periodo

$$1. \int_{-2}^2 2x^2 dx = \frac{x^3}{3} \Big|_{-2=0}^{2=2} = \frac{(2)^3}{3} - \frac{(-2)^3}{3} = \frac{8+8}{3} = \frac{16}{3}$$

$$2. \int_{-3}^3 (2x^2 + 3) dx = 2 \cdot \frac{x^3}{3} + 3 \cdot \frac{x}{1} \Big|_{-3}^3 = \frac{2 \cdot 3^3}{3} + 3 \cdot 3 - \left(\frac{2 \cdot (-3)^3}{3} + 3 \cdot (-3) \right)$$

$$= 2 \cdot \frac{3^3}{3} + 3 \cdot 3 - \left(\frac{2 \cdot (-3)^3}{3} + 3 \cdot (-3) \right)$$

$$= 2 \cdot \frac{27}{3} + 9 - \left(\frac{2 \cdot (-27)}{3} + -9 \right)$$

$$= 18 + 9 - \frac{54}{3} - 9$$

$$= \frac{144}{1} - \frac{54}{3} = \frac{96}{3} - \frac{27}{1} - \frac{63}{3} - 9$$

$$3. \int_{-3}^3 x^4 (x^3 - x) dx$$

$$= \int_{-3}^3 \frac{x^5}{5} \left(\frac{x^4}{4} - \frac{x^2}{2} \right) dx$$

$$= x^5 \left(\frac{x^4}{4} - \frac{x^2}{2} \right) \Big|_{-3}^3 = \left[(3)^5 \left(\frac{(3)^4}{4} - \frac{(3)^2}{2} \right) \right] - \left[(-3)^5 \left(\frac{(-3)^4}{4} - \frac{(-3)^2}{2} \right) \right]$$

$$[243 (81 - 9)] - [-243 (-81 + 9)]$$

$$[243(72)] - [-243(-72)]$$

$$17496 - 17496$$

$$= 0$$