

PROCEDIMIENTOS

7. $\int_{-2}^2 x^2 dx$

$\int x^2 dx$

$$\frac{x^{2+1}}{2+1} = \frac{x^3}{3}$$

$$\frac{x^3}{3} \Big|_{-2}^2 = \frac{2^3}{3} - \frac{(-2)^3}{3} = \frac{76}{3}$$

2. $\int_3^2 (2x^2 + 3) dx$

$\int 2x^2 + 3 dx$

$\int 2x^2 dx + \int 3 dx$

$\frac{2x^3}{3} + 3x$

$$\left(\frac{2x^3}{3} + 3x \right) \Big|_3^2$$

$$\frac{2x^3}{3} + 3x - \left(\frac{2x^3}{3} + 3x \right) \Big|_3^2 = 54$$

$$3. \int_{-3}^3 \frac{x^5}{3} \left(\frac{x^4}{4} - \frac{x^2}{2} \right) \Big|_{-3}^3$$

$$x^5 (x^4 - x^2) \Big|_{-3}^3$$

$$= \left[(3)^5 ((3)^4 - (3)^2) \right] - \left[(-3)^5 ((-3)^4 - (-3)^2) \right]$$

$$\left[243 (81 - 9) \right] - \left[-243 (-81 + 9) \right]$$

$$\left[243 (72) \right] - \left[-243 (-72) \right]$$

$$77496 - 77496$$

$$= 0$$

$$5. \int_8^{12} f(x) dx$$

$$\int_8^{12} (x+8) dx$$

$$\left. \frac{x^2}{2} + 8x \right|_8^{12}$$

$$\left(\frac{12^2}{2} + 8(12) \right) - \left(\frac{8^2}{2} + 8(8) \right)$$

$$768 - 96$$

$$\int_8^{12} f(x) dx = 72$$

$$6. \int_{-2}^6 \left(9 - \frac{x^2}{4} + x + 3 \right) dx$$

$$\int_6^9 f(x) - g(x) dx$$

$$= \int_{-2}^6 \left[9 - \left(\frac{x^2}{4} \right) - (6-x) \right] dx = \int_{-2}^6 \left[3 - \frac{x^2}{4} + x \right] dx$$

$$= \left[3x - \frac{x^3}{12} + \frac{x^2}{2} \right] \Big|_{-2}^6 = \frac{64}{3}$$