

PROCEDIMIENTO EXAMEN

$$1. \int_{-2}^2 x^2 dx$$

$$\int x^2 dx$$

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

$$\left. \frac{x^3}{3} \right|_{-2}^2 = \frac{2^3}{3} - \frac{(-2)^3}{3} = \frac{16}{3}$$

$$2. \int_{-3}^3 (2x^2 + 3) dx$$

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

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

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

$$\left. \left(\frac{2x^3}{3} + 3x \right) \right|_{-3}^3$$

$$\frac{2 \times 3^3}{3} + 3 \times 3 - \left(\frac{2 \times (-3)^3}{3} + 3 \times (-3) \right) = \boxed{54}$$

$$3. \int_3^5 x^3$$

$$\frac{x^4}{5} \left(\frac{x^4 - x^2}{4} - \frac{x^2}{2} \right)$$

$$\Big|_3^5$$

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

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

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

$$17496 - 17496$$

$$= 0$$

4.

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

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

$$\frac{x^2}{2} + 8x \Big|_8^{12}$$

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

$$168 - 96$$

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

$$6. \int_2^6 \left(\frac{x^2}{4} + x + 3 \right) dx$$

$$\int_2^6 \left(\frac{x^2}{4} + x + 3 \right) dx$$

$$\int_2^6 \left[9 - \left(\frac{x}{2} \right)^2 - (6-x) \right] dx = \int_2^6 \left[3 - \frac{x^2}{4} + x \right] dx$$

$$\left[3x - \frac{x^3}{12} + \frac{x^2}{2} \right] \Big|_2^6 = \frac{64}{3}$$