

Examen Bimestral

$$1) \int_{-2}^2 x^2 dx \Big|_{-2}^2 \frac{x^3}{3} = \frac{2^3}{3} = \frac{-2^3}{3}$$

$$= \frac{8}{3} - \frac{-8}{3} = \frac{0}{3} = 0$$

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

$$= \int_{-3}^3 \frac{2x^3}{3} + \int_{-3}^3 3 \cdot x$$

$$= \frac{2 \cdot 3^3}{3} - \frac{2 \cdot (-3)^3}{3} = \frac{54}{3} = \frac{-54}{3} = \frac{108}{3} = 36$$

$$= 3 \cdot 3 - 3 \cdot -3$$

$$= \cancel{0} 18$$

$$= 36 + 18 = 54$$

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

$$= \int_{-3}^3 x^4 \int_{-3}^3 x^3 - \int_{-3}^3 x$$

$$= \int_{-3}^3 \frac{x^5}{5} \Big|_{-3}^3 - \frac{3^5}{5} - \frac{-3^5}{5} = \frac{243}{5} - \frac{-243}{5}$$

$$= \frac{486}{5} = 97.2$$

$$= \int_{-3}^3 \frac{x^4}{4} \Big|_{-3}^3 - \frac{3^4}{4} - \frac{-3^4}{4} = \frac{81}{4} - \frac{-81}{4}$$

$$= \frac{81 - 81}{4} = 0$$

$$= \int_{-3}^3 \frac{x^2}{2} \Big|_{-3}^3 - \frac{3^2}{2} - \frac{-3^2}{2} = \frac{9}{2} - \frac{-9}{2}$$

$$= \frac{18}{2} = 9$$

$$= 97.2 \cdot (0 - 9) = 0$$

$$b) \int_{-2}^6 \frac{x^2}{4} + x + 3 \, dx$$

$$= \int_{-2}^6 \frac{x^3}{3} \Big|_{-2}^6 + \int_{-2}^6 \frac{x^2}{2} \Big|_{-2}^6 + \int_{-2}^6 3 \cdot x \, dx$$

$$= \left[\frac{6^3}{3} - \frac{-2^3}{3} \right] = \frac{216}{3} - \frac{4}{3} = \frac{72}{1} - \frac{1.6}{1}$$

$$= \cancel{70.325} = \cancel{176} \quad \frac{74.6}{4} = 18.65$$

$$= \int_{-2}^6 \frac{6^2}{2} - \frac{-2^2}{2} = \frac{36}{2} - \frac{4}{2} = \frac{32}{2} = 16$$

$$\left[3 \cdot 6 - 3 \cdot -2 \right] = 18 - -6$$

$$= 24 = 18.65 + 16 + 24$$

$$= 58.65$$