Punto 26 parte teórica:

a) Ancho:

$$\Delta x = (b-a)/n \qquad b=2,\ a=0$$

$$\Delta x = (2-0)/n = \frac{2}{n}$$

b) Puntos nodales:

$$x_i = i\,\Delta x = i\left(\frac{2}{n}\right)$$

$$x_0 = 0 \qquad x_2 = 2\Delta x$$

$$x_1 = \Delta x \qquad x_{n-1} = (n-1)\Delta x$$

c) función:

$$f(x_i) = x_i^3 = i^3\Delta x^3$$

$$f(x_0) = 0 \qquad f(x_1) = \Delta x^3 \qquad f(x_2) = 8\Delta x^3 \qquad f(x_{n-1}) = (n-1)^3\Delta x^3$$

d) Suma de Riemann:

$$\sum_{i=0}^{n-1} f(x_i)\Delta x = 4\left(1 - \frac{2}{n} + \frac{1}{n^2}\right) \qquad \sum_{i=0}^{n-1} i^3 = \frac{(n(n-1))^2}{4}$$

$$\sum_{i=0}^{n-1} i^3\Delta x^3\Delta x = \left(\frac{(n(n-1))^2}{4}\right)\Delta x^4$$

$$= \frac{(n(n-1))^2}{4}\frac{2^4}{n^4} = \frac{4(n-1)^2}{n^2} = \frac{4\left(n^2+1-2n\right)}{n^2}$$

$$= 4\left(1 - \frac{2}{n} + \frac{1}{n^2}\right)$$

▨