

FÓRMULAS DE DERIVACIÓN NUMÉRICA

1. $y'_0 = \frac{1}{h} \left\{ \underline{\underline{-1}} \quad 1 \right\} + e_r$
2. $y'_0 = \frac{1}{2h} \left\{ \underline{\underline{-3}} \quad 4 \quad -1 \right\} + e_r$
3. $y'_1 = \frac{1}{2h} \left\{ -1 \quad \underline{\underline{0}} \quad 1 \right\} + e_r$
4. $y'_2 = \frac{1}{2h} \left\{ 1 \quad -4 \quad \underline{\underline{3}} \right\} + e_r$
5. $y'_0 = \frac{1}{6h} \left\{ \underline{\underline{-11}} \quad 18 \quad -9 \quad 2 \right\} + e_r$
6. $y'_1 = \frac{1}{6h} \left\{ -2 \quad \underline{\underline{-3}} \quad 6 \quad -1 \right\} + e_r$
7. $y'_2 = \frac{1}{6h} \left\{ 1 \quad -6 \quad \underline{\underline{3}} \quad 2 \right\} + e_r$
8. $y'_3 = \frac{1}{6h} \left\{ -2 \quad 9 \quad -18 \quad \underline{\underline{11}} \right\} + e_r$
9. $y''_0 = \frac{1}{h^2} \left\{ \underline{\underline{2}} \quad -5 \quad 4 \quad -1 \right\} + e_r$
10. $y''_1 = \frac{1}{h^2} \left\{ 1 \quad \underline{\underline{-2}} \quad 1 \quad 0 \right\} + e_r$
11. $y''_2 = \frac{1}{h^2} \left\{ 0 \quad 1 \quad \underline{\underline{-2}} \quad 1 \right\} + e_r$
12. $y''_3 = \frac{1}{h^2} \left\{ -1 \quad 4 \quad -5 \quad \underline{\underline{2}} \right\} + e_r$
13. $y'_4 = \frac{1}{12h} \left\{ 1 \quad -8 \quad \underline{\underline{0}} \quad 8 \quad -1 \right\} + e_r$

FÓRMULAS DE INTEGRACIÓN NUMÉRICA

1. $\int_{x_0}^{x_n} f(x) dx = \frac{h}{2} \left[y_0 + y_n + 2 \sum_{i=1}^{n-1} y_i \right] + e_r$ Fórmula de integración trapezoidal
2. $\int_{x_0}^{x_n} f(x) dx = \frac{h}{3} \left[y_0 + y_n + 4 \sum_{\substack{\text{ordenadas con} \\ \text{índice impar}}} + 2 \sum_{\substack{\text{ordenadas con} \\ \text{índice par}}} \right] + e_r$ Simpson 1/3
3. $\int_{x_0}^{x_n} f(x) dx = \frac{3}{8} h \left[y_0 + y_n + 2 \sum_{\substack{\text{ordenadas con} \\ \text{de 3}}} \text{índice múltiplo} + 3 \sum_{\substack{\text{resto de} \\ \text{ordenadas}}} \right] + e_r$ Simpson 3/8