

## Taller 10

\*①

$$F(0,6) \text{ Si } F(x) = 0,2x^3 - 1,5x^2 + 3,2x - 2$$

$$x = 0,5$$

$$h = 0,6 - 0,5 = 0,1$$

$$F(x) = 0,2x^3 - 1,5x^2 + 3,2x - 2$$

$$F'(x) = 0,6x^2 - 3x + 3,2$$

$$F''(x) = 1,2x - 3$$

$$F^{(3)}(x) = 1,2$$

$$\begin{aligned} * F(0,5) &= 0,2(0,5)^3 - 1,5(0,5)^2 + 3,2(0,5) - 2 \\ &= 0,2(0,125) + 1,6 - 2 \\ &= 0,025 - 0,375 + 1,6 - 2 = -0,75 \end{aligned}$$

$$\begin{aligned} * F'(0,5) &= 0,6(0,5)^2 - 3(0,5) + 3,2 = 0,6(0,25) - 1,5 + 3,2 \\ &= 0,15 - 1,5 + 3,2 = 1,85 \end{aligned}$$

$$* F''(0,5) = 1,2(0,5) - 3 = 0,6 - 3 = -2,4$$

$$* F^{(3)} = 1,2$$

$$F(0,6) = F(0,5) + F'(0,5)h + \frac{F''(0,5)h^2}{2!} + \frac{F^{(3)}(0,5)h^3}{3!}$$

$$F(0,6) = -0,75 + 1,85(0,1) + \frac{-2,4}{2}(0,01) + \frac{1,2}{6}(0,001)$$

$$F(0,6) = -0,75 + 0,185 - 0,012 + 0,0002 = -0,5768$$

$$F(0,6) = -0,5768$$



②  $F(0,75)$ ,  $F(x) = 1,2e^x - 4,5x + 3,3$

$x = 0,7$

$x = 0,75 \rightarrow h = 0,05$

$F(x) = 1,2e^x - 4,5x + 3,3$

$F'(x) = 1,2e^x - 4,5$

$F''(x) = 1,2e^x$

$F^{(3)}(x) = 1,2e^x$

$e^{0,7} = 2,01375$

$\begin{aligned} * F(0,7) &= 1,2(2,01375) - 4,5(0,7) + 3,3 \\ &= 2,4165 - 3,15 + 3,3 \\ &= 2,5665 \end{aligned}$

$\begin{aligned} * F'(0,7) &= 1,2(2,01375) - 4,5 = \\ &= 2,4165 - 4,5 \\ &= -2,0835 \end{aligned}$

$\begin{aligned} * F''(0,7) &= 1,2(2,01375) \\ &= 2,4165 \end{aligned}$

$* F^{(3)}(0,7) = 2,4165$

$h = 0,005$

$$\begin{aligned} F(0,75) &= 2,5665 + (-2,0835)(0,005) + \frac{2,4165}{2}(0,0025) \\ &\quad + \frac{2,4165}{6}(0,000125) \\ &= 2,5665 - 0,104175 + 0,003020625 + \\ &\quad 0,00005034375 \\ &= 2,46539597 \end{aligned}$$