

11.10

tisdag 27 december 2022

16:34

$$|f(x) - P_3(x)| \leq \frac{1}{6} x^4, \quad |x| \leq 1$$

$$R_4(x) = \frac{f^{(4)}(\beta)}{4!} x^4 = \frac{e^\beta + e^{-\beta}}{24} x^4 \quad 0 \leq \beta \leq x$$

$6^4$

$$f(x) = e^x + e^{-x}$$

$$f'(x) = e^x - e^{-x}$$

$$f''(x) = e^x + e^{-x}$$

$$f'''(x) = f'(x)$$

$$f^{(4)}(x) = f''(x)$$

$$|R_4(x)| = \frac{e^\beta + e^{-\beta}}{24} x^4 \leq \frac{e+1}{24} x^4 < \frac{\cancel{4}}{6 \cdot \cancel{4}} x^4 = \frac{1}{6} x^4 \quad \text{v.s.v}$$

$e < 3$

$$0 \leq \beta \leq 1$$

$$-1 \leq -\beta \leq 0$$

största värdet  
möjligt i täljaren