

3
b

$$\begin{array}{lcl}
 x_0 = 0 & e^{x_0} & \\
 x_1 = 1 & e^{x_1} & \\
 x_2 = 2 & e^{x_2} & \\
 x_3 = 3 & e^{x_3} &
 \end{array}
 \begin{array}{l}
 > e^{x_1} - e^{x_0} > \frac{1}{2}(e^{x_2} - 2e^{x_1} + e^{x_0}) > \frac{1}{6}(e^{x_3} - 3e^{x_2} + 3e^{x_1} - e^{x_0}) \\
 > e^{x_2} - e^{x_1} > \frac{1}{2}(e^{x_3} - 2e^{x_2} + e^{x_1}) \\
 > e^{x_3} - e^{x_2}
 \end{array}$$

$$\begin{aligned}
 p_n(x) &= e^{x_0} + (e^{x_1} - e^{x_0})(x - x_0) + \frac{1}{2}(e^{x_2} - 2e^{x_1} + e^{x_0})(x - x_0)(x - x_1) + \dots \\
 &\quad (e^{x_3} - 3e^{x_2} + 3e^{x_1} - e^{x_0})(x - x_0)(x - x_1)(x - x_2) \\
 &\approx 1 + 1.718x + 1.477(x^2 - 1) + \dots \\
 &\quad \dots + 5.073(x^4 - 3x^3 + 3x)
 \end{aligned}$$

$$\begin{aligned}
 p_n(x) &= 5.073x^4 - 15.22x^3 - 13.74x^2 + 16.94x + \dots \\
 &\quad \dots - 0.4770
 \end{aligned}$$