3b

$$P_3(x) = a_0 + a_1(x-x_0) + a_2(x-x_0)(x-x_1) + \cdots$$

$$\cdots + a_3(x-x_0)(x-x_1)(x-x_2)$$

$$P_3(x) = e + (e-1)x + \frac{e^2-2e+1}{2}x(x-1) + \cdots$$

$$\cdots + \frac{1}{6}\left(e^3-3e^2+3e-1\right)x(x-1)(x-2)$$

$$\approx 0.8455\left(x^3-3x^2+2x\right) + 1.4762\left(x^2-x\right) + \cdots$$

$$\cdots + 1.7183x + 2.7183$$

$$\approx 0.8455x^3 + x^2(-3\cdot 0.8455 + 1.4762) + \cdots$$

$$\cdots + x(2\cdot 0.8455 - 1.4762 + 1.7183) + 2.7183$$