

$$1 \quad 0$$

$$1 \quad 0 \quad \frac{3}{2} \ln 3 \quad \frac{3}{4} \ln 3 - \frac{1}{2} \quad \frac{1}{2}(1 - \ln 3)$$

$$3 \quad 3 \ln 3 \quad \ln 3 + 1 \quad -\frac{1}{4} \ln 3 + \frac{1}{2}$$

$$3 \quad 3 \ln 3$$

$$p(x) = 0 + (x-1) + \left(\frac{3}{4} \ln 3 - \frac{1}{2}\right)(x-1)^2 + \frac{1}{2}(1 - \ln 3)(x-1)^2(x-3)$$

$$= a(x-1)^2(x-3) + b(x-1)^2 + (x-1)$$

$$= a(x^2 - 2x + 1)(x-3) + b(x^2 - 2x + 1) + x - 1$$

$$= a(x^3 - 3x^2 - 2x^2 + 6x + x - 3) + bx^2 - 2bx + b + x - 1$$

$$= ax^3 - 5ax^2 + 6ax + ax - 3a + bx^2 - 2bx + b + x - 1$$

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1	•	•	•	•	•	•	•
2	•	•	•	•	•	•	•
3	•	•	•	•	•	•	•
4	•	•	•	•	•	•	•

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2 HR STUDY
2 APPLICATIONS

$$\begin{aligned} z_0 &= x_0 = 1 \rightarrow f(x_0) = \ln 1 = 0 & X_0^T f(x_0) &= 1 \\ z_1 &= x_1 = 1 \rightarrow 0 & X_1^T f(x_1) &= 1 \\ z_2 &= x_2 = 3 \rightarrow f(x_2) = 3 \ln 3 & X_2^T f(x_2) &= \frac{3}{2} \ln 3 \\ z_3 &= x_3 = 3 \rightarrow 3 \ln 3 & X_3^T f(x_3) &= \ln 3 + 1 \end{aligned}$$

$$f(x) = \ln x + 1$$

$$f(1) = 1$$

$$f(3) = \ln 3 + 1$$

$$f(x_2) = \frac{f(x_2) - f(x_1)}{x_2 - x_1} = \frac{3 \ln 3 - 0}{3 - 1} = \frac{3}{2} \ln 3$$

$$f(z_0, z_1, z_2) = \frac{f(z_2) - f(z_1)}{z_2 - z_1} = \frac{f(3) - f(1)}{3 - 1}$$

$$\frac{3}{2} \ln 3 = \frac{1}{2} \ln 3 + \frac{1}{2}$$