

Problem 8

$$g_i(x) = f(x_i) + f[x_i, x_{i+1}](x - x_i) \quad \text{if } x \in [x_i, x_{i+1})$$

$$[x_0, x_1) \ni g_1(x) = 1.2 + \frac{1.6 - 1.2}{1}(x) = 1.2 + 0.4x$$

$$\begin{aligned} [x_1, x_2) \ni g_2(x) &= 1.6 + \frac{0.6 - 1.6}{1}(x - 1) = 1.6 + (-1)(x - 1) \\ &= 2.6 - x \end{aligned}$$

$$\begin{aligned} [x_2, x_3) \ni g_3(x) &= 0.6 + \frac{-0.6 - 0.6}{2}(x - 2) = 0.6 - 1.2(x - 2) \\ &= 3 - 1.2x \end{aligned}$$

$$\begin{aligned} [x_3, x_4) \ni g_4(x) &= -0.6 + \frac{1 + 0.6}{1}(x - 3) = -0.6 + 1.6(x - 3) \\ &= -5.4 + 1.6x \end{aligned}$$