1) $I_1 = \frac{2h}{3}(f(0) + 4f(2) + f(4)) =$

$I_2 = \frac{h}{3}(f(0) + 4f(1) + f(2)) + \frac{h}{3}(f(2) + 4f(3) + f(4))$

$A = I_2 + \frac{I_2 - I_1}{2^n - 1} = I_2 + \frac{I_2 - I_1}{16 - 1} = \frac{16}{15}I_2 - \frac{1}{15}I_2$

$\frac{16}{15}I_2 = \frac{h}{45}(16f(0) + 64f(1) + 32f(2) + 64f(3) + 16f(4))$

$\frac{1}{15}I_1 = \frac{h}{45}(2f(0) + 0f(1) + 8f(2) + 0f(3) + 2f(4))$

$A = \frac{h}{45}(14f(0) + 64f(1) + 24f(2) + 64f(3) + 14f(4))$

$= \frac{2h}{45}(7f(0) + 32f(1) + 12f(2) + 32f(3) + 7f(4)) \Rightarrow$ 4th order interpolating polynomial $\int_{x_0}^{x_4} f(x)\,dx$