4a

$$N_0(h) = M - K_1 h - K_2 h^2 - K_3 h^3 - \cdots$$

$$N_0(h/3) = M - K_1 \frac{h}{3} - K_2 \frac{h^2}{9} - K_3 \frac{h^3}{27} - \cdots$$

$$N_1(h/3) = \frac{3N_0(h/3) - N_0(h)}{2}$$

$$= \frac{1}{2}\left[2M + K_1 h(1-1) + K_2 h^2\left(\frac{1}{3} - 1\right) + K_3 h^3\left(\frac{1}{9} - 1\right)\right]$$

$$N_1(h/3) = M + \frac{1}{3}K_2 h^2 + \frac{4}{9}K_3 h^3 + \cdots$$

$$N_1(h/9) = \frac{3N_0(h/9) - N_0(h/3)}{2}$$

$$= \frac{1}{2}\left[2M + K_1 \frac{h}{3}(0) + K_2 h^2\left(\frac{1}{9} - \frac{3}{81}\right) + \cdots\right.$$

$$\left. \cdots + K_3 h^3\left(\frac{1}{27} - \frac{3}{729}\right) + \cdots\right]$$