Trapezoidal Rule

$$h = \frac{b-a}{n}$$

$$\int_a^b f(x) = \frac{h}{2}\left[y_1 + 2(y_2+y_3+y_4+\cdots+y_{n-1}) + y_n\right]$$

Simpson's 1/3rd Rule

$$h = \frac{b-a}{2n}$$

$$\int_a^b f(x) = \frac{h}{3}\left[y_1 + 4(y_2+y_4+y_6+\cdots+y_{n-1}) + 2(y_3 + y_5+y_7+\cdots+y_{n-2}) + y_n\right]$$

Simpson's 3/8th Rule

$$h = \frac{b-a}{3n}$$

$$\int_a^b f(x) = \frac{3h}{8}\left[y_1 + 3(y_2+y_3+y_5+y_6+\cdots+y_{n-2}+y_{n-1}) + 2(y_4+y_7+\cdots+y_{n-3}) + y_n\right]$$