## Trapezoidal Rule

$$\int_{a=x_0}^{b=x_n} y\,dx = \frac{h}{2}\left[y_0 + 2(y_1 + y_2 + \cdots + y_{n-1}) + y_n\right]$$

## Simpson's 1/3rd Rule

$$\int_{a=x_0}^{b=x_n} y\,dx = \frac{h}{3}\left[y_0 + 4(y_1 + y_3 + \cdots + y_{n-1}) + 2(y_2 + y_4 + \cdots + y_{n-2}) + y_n\right]$$

## Simpson's 3/8 th Rule

$$\int_{a=x_0}^{b=x_3} y\,dx = \frac{3h}{8}\left[y_0 + 3y_1 + 3y_2 + y_3\right]$$

## Weddle's Rule

$$\int_{a=x_0}^{b=x_n} y\,dx = \frac{3h}{10}\left[(y_0 + y_2 + y_4 + y_8 + \cdots) + 5(y_1 + y_5 + y_7 + y_{11} + \cdots) + 6(y_3 + y_9 + \cdots) + 2(y_6 + y_{12} + \cdots)\right]$$

$$\int_{x_0}^{x_{12}} y\,dx = \frac{3h}{10}\left[y_0 + 5y_1 + y_2 + 6y_3 + y_4 + 5y_5 + y_6 + y_6 + 5y_7 + y_8 + 6y_9 + y_{10} + 5y_{11} + y_{12}\right]$$