

3.

$$\int_a^b f(x) dx = S(x)$$

$$f(x) = x^2$$

$$\int_0^{2h} x^2 dx = h \left(\frac{1}{3} f(x_0) + \frac{4}{3} f(x_1) + \frac{1}{3} f(x_2) \right)$$

$$\left. x^3 \right|_0^{2h} = h \left(0 + \frac{4}{3} h^2 + \frac{1}{3} h^3 \right)$$

$$\frac{1}{3} (2h)^3 = h \left(\frac{8}{3} h^2 \right)$$

$$\frac{8}{3} h^3 = \frac{8}{3} h^3$$