$$p_2(x) = \frac{(x-b)(x-x_m)}{(a-b)(a-x_m)} f(a) + \frac{(x-a)(x-b)}{(x_m-a)(x_m-b)} f(x_m) + \frac{(x-a)(x-x_m)}{(b-a)(b-x_m)} f(b)$$

$c = x_m$

$$\int_a^b p_2(x)dx = \left[\frac{\left(\frac{1}{2} x^2 \left(a^2 f(b) - a^2 f(c) + b^2 f(c) - c^2 f(b)\right) - a x \left(-a b f(c) + a c f(b) + b^2 f(c) - c^2 f(b)\right) + \frac{1}{3} x^3 f(a) (b-c) + \frac{1}{3} x^3 (-a f(b) + a f(c) + c f(b) - b f(c)) + \frac{1}{2} x^2 f(a) (-b-c)(b-c) + b c x f(a) (b-c)\right)}{((a-b)(a-c)(b-c))} \right]_a^b$$

$$\int_a^b p_2(x)dx = \frac{h}{3}(f(a) + 4f(x_m) + f(b)).$$

donde:

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

n es un numero par siempre