

Binomial Expansion

$$(x + \Delta x)^2 = x^2 + 2x \cdot \Delta x + (\Delta x)^2$$

$$(x + \Delta x)^3 = x^3 + 3x^2 \cdot \Delta x + 3x(\Delta x)^2 + (\Delta x)^3$$

$$(x + \Delta x)^4 = x^4 + 4x^3 \cdot \Delta x + 6x^2 (\Delta x)^2 + 4x(\Delta x)^3 + (\Delta x)^4$$

$$(x + \Delta x)^5 = x^5 + 5x^4 (\Delta x) + 10x^3 (\Delta x)^2 + 10x^2 (\Delta x)^3 + 5x(\Delta x)^4 + (\Delta x)^5$$