

# Binomio de Newton

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## Producto notable

La formula del producto notable es:

$$(a + b)^2 = a^2 + 2ab + b^2$$

## Función

```
binomio_cuadrado = function(a, b){  
  a^2 + 2*a*b + b^2  
}  
  
binomio_cuadrado(1, 2)
```

```
## [1] 9
```

## Binomio de Newton

Fórmula:

$$(a + b)^n = \sum_{k=0}^n \binom{n}{k} \cdot a^{n-k} \cdot b^k = \binom{0}{n} * a^n * b^0 \dots \binom{n}{n} * a^0 * b^n$$

## Función

```
binomio_newton <- function(a, b, n){  
  cumsum(choose(n, (0:n))* a^{n-(0:n)} * b^(0:n))[n + 1]  
}  
  
binomio_newton(1, 2, 2)
```

```
## [1] 9
```

```
binomio_newton(3, 4, 14)
```

```
## [1] 678223072849
```