

# Binomio de Newton

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## Producto notable

La formula es la siguiente

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

## Funcion que calcula pn

```
binomioNewton2 = function(a, b){  
  a^2+2*a*b+b^2  
}  
  
binomioNewton2(1, 2)
```

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

```
binomioNewton2(2, 1)
```

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

## Binomio de Newton

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

## Funcion

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

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

```
binomioNewton(3,4,14)
```

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