1	1				
1	2	1			
1	3	3	1		
1	4	6	4	1	
1	5	10	10	5	1

C(n,k)=C(n,n-k)

C(1,0)	C(1,1)			
C(2,0)	C(2,1)	C(2,2)		
C(3,0)	C(3,1)	C(3,2)	C(3,3)	
C(4,0)	C(4,1)	C(4,2)	C(4,3)	C(4,4)

$$C_0^0$$
$$C_1^0 \quad C_1^1$$
$$C_2^0 \quad C_2^1 \quad C_2^2$$
$$C_3^0 \quad C_3^1 \quad C_3^2 \quad C_3^3$$
$$C_4^0 \quad C_4^1 \quad C_4^2 \quad C_4^3 \quad C_4^4$$

(a+b+c+...+d)^k=P(k1,k2,...,kt)*

(a+b)^4=(a+b)*(a+b)*(a+b)*(a+b)

a^3b^1

a a a b = a^3b
a b a a = a^3b C(4,3)=4*3*2 / 3! = C(4,1)

C(4,0)=4!/4!*0!=1

(a+b)^4=1*a^4+4*a^3b^1 + 6a^2b^2 +4a^1b^3 + 1*b^4
(a+b)^5=1*a^5+5*a^4b+10a^3b^2+10a^2b^3+5ab^4+b^5

(a+b+c)^7=...+P(3,2,2)a^3*b^2*c^2+...

P(k1,k2)=(k1+k2)! / k1!*k2!

k1+k2=k

C(k,k1) = k! / ((k-k1)!*k1!)

P(n)=n!

P(k1,k2,...,kt)=(k1+k2+...+kt)! / (k1!*k2!*...*kt!)
P(2,3,2,1,1,1)=(2+3+2+1+1+1)! / (2!*3!*2!*1!*1!*1!)

(a+b)^107= C(107,4)a^103b^4