Pascalsches Dreieck

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

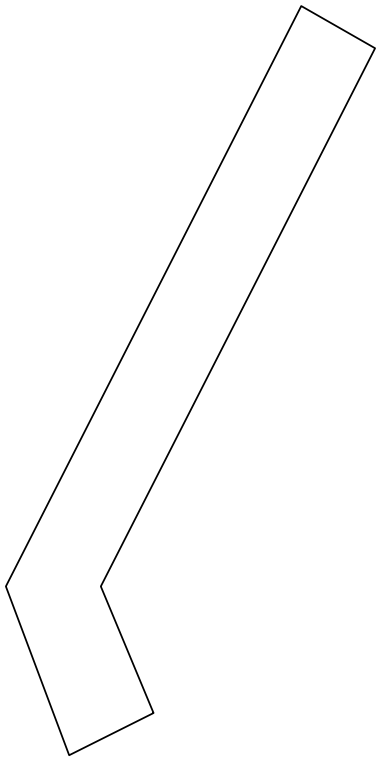
1 5 10 10 5 1

1 6 15 20 15 6 1

1 7 21 35 35 21 7 1

Rekursion:

$$\binom{n}{k} = \binom{n-1}{k} + \binom{n-1}{k-1} \qquad (n, k > 0)$$



Spaltensumme:

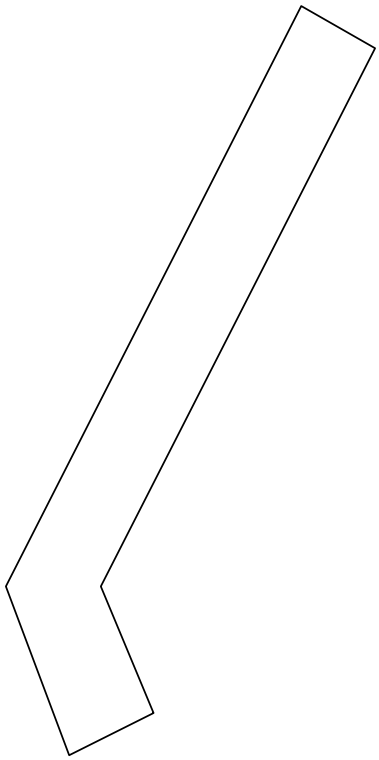
$$\binom{n+1}{k+1} \quad = \quad \sum_{\ell=k}^{n} \binom{\ell}{k}$$

Stirling Dreieck (2.Art)

			1				
		1		1			
	1		3		1		
1		7		6		1	
	1		15		25		10		1
		1		31		90		65		15		1
	1		63		301		350		140		21		1
1		127		966		1701		1050		266		28		1

Rekursion:

$$S_{n,k} = S_{n-1,k-1} + k \times S_{n-1,k} \qquad (n, k > 0)$$



(gewichtete) Spaltensumme:

$$S_{n+1,k+1} \quad = \quad \sum_{\ell=k}^{n} \binom{n}{\ell} S_{\ell,k}$$

(Ungeordnete) Zahlpartitionen

1

1 1

1 1 1

1 2 1 1

1 2 2 1 1

1 3 3 2 1 1

1 3 4 3 2 1 1

1 4 5 5 3 2 1 1

Rekursion:

$$P_{n,k} = P_{n-1,k-1} + P_{n-k,k} \qquad (n, k > 0)$$

Stirling Dreieck (1.Art)

			1			
		1		1		
	2		3		1	
6		11		6		1
24	50		35		10	1
120	274	225		85	15	1
720	1764	1624	735		175	21	1

Rekursion:

$$s_{n,k} = s_{n-1,k-1} + (n-1) \times s_{n-1,k} \qquad (n, k > 0)$$