Pascalsches Dreieck

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

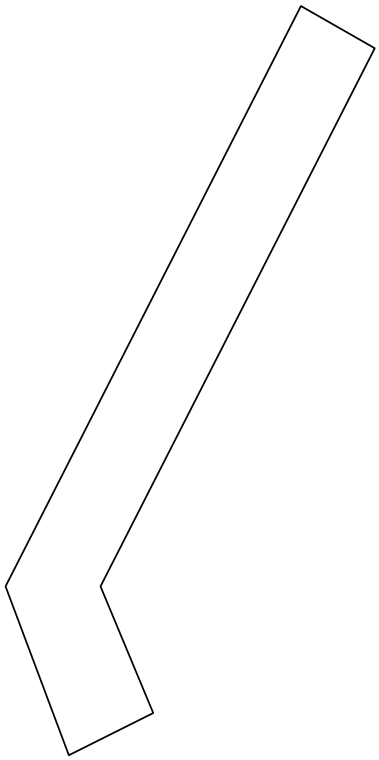
1 5 10 10 5 1

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:

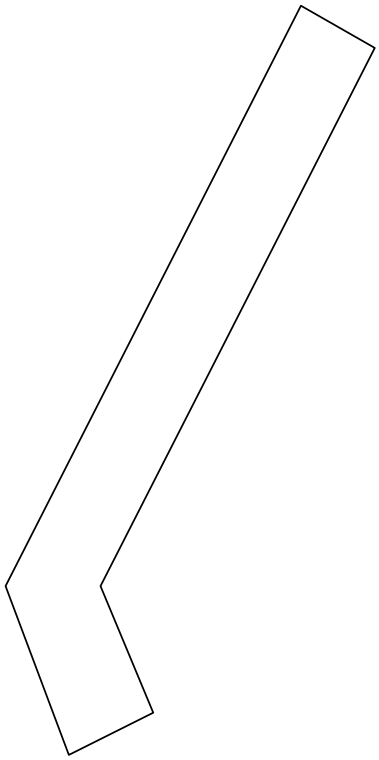
$$\binom{n+1}{k+1} \;=\; \sum_{\ell=k}^{n} \binom{\ell}{k}$$

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:

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