

## Tabelle 2: Binomialkoeffizienten

Unter dem Binomialkoeffizienten  $\binom{n}{r}$  versteht man, dass aus einer Reihe von n verschiedenen Elementen r Elemente (ohne Zurücklegen) gezogen werden (ohne Beachtung der Reihenfolge).

Es gilt:  $\binom{n}{r} = \frac{n!}{r!(n-r)!}$       Beispiel:  $\binom{49}{6} = \frac{49!}{6!(49-6)!} = 13983816$

r	1	2	3	4	5	6	7	8	9	10
n										
1	1									
2	2	1								
3	3	3	1							
4	4	6	4	1						
5	5	10	10	5	1					
6	6	15	20	15	6	1				
7	7	21	35	35	21	7	1			
8	8	28	56	70	56	28	8	1		
9	9	36	84	126	126	84	36	9	1	
10	10	45	120	210	252	210	120	45	10	1
11	11	55	165	330	462	462	330	165	55	11
12	12	66	220	495	792	924	792	495	220	66
13	13	78	286	715	1.287	1.716	1.716	1.287	715	286
14	14	91	364	1.001	2.002	3.003	3.432	3.003	2.002	1.001
15	15	105	455	1.365	3.003	5.005	6.435	6.435	5.005	3.003
16	16	120	560	1.820	4.368	8.008	11.440	12.870	11.440	8.008
17	17	136	680	2.380	6.188	12.376	19.448	24.310	24.310	19.448
18	18	153	816	3.060	8.568	18.564	31.824	43.758	48.620	43.758
19	19	171	969	3.876	11.628	27.132	50.388	75.582	92.378	92.378
20	20	190	1.140	4.845	15.504	38.760	77.520	125.970	167.960	184.756
21	21	210	1.330	5.985	20.349	54.264	116.280	203.490	293.930	352.716
22	22	231	1.540	7.315	26.334	74.613	170.544	319.770	497.420	646.646
23	23	253	1.771	8.855	33.649	100.947	245.157	490.314	817.190	1.144.066
24	24	276	2.024	10.626	42.504	134.596	346.104	735.471	1.307.504	1.961.256
25	25	300	2.300	12.650	53.130	177.100	480.700	1.081.575	2.042.975	3.268.760

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$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

r	1	2	3	4	5	6	7	8	9	10
n										
26	26	325	2.600	14.950	65.780	230.230	657.800	1.562.275	3.124.550	5.311.735
27	27	351	2.925	17.550	80.730	296.010	888.030	2.220.075	4.686.825	8.436.285
28	28	378	3.276	20.475	98.280	376.740	1.184.040	3.108.105	6.906.900	13.123.110
29	29	406	3.654	23.751	118.755	475.020	1.560.780	4.292.145	10.015.005	20.030.010
30	30	435	4.060	27.405	142.506	593.775	2.035.800	5.852.925	14.307.150	30.045.015
31	31	465	4.495	31.465	169.911	736.281	2.629.575	7.888.725	20.160.075	44.352.165
32	32	496	4.960	35.960	201.376	906.192	3.365.856	10.518.300	28.048.800	64.512.240
33	33	528	5.456	40.920	237.336	1.107.568	4.272.048	13.884.156	38.567.100	92.561.040
34	34	561	5.984	46.376	278.256	1.344.904	5.379.616	18.156.204	52.451.256	131.128.140
35	35	595	6.545	52.360	324.632	1.623.160	6.724.520	23.535.820	70.607.460	183.579.396
36	36	630	7.140	58.905	376.992	1.947.792	8.347.680	30.260.340	94.143.280	254.186.856
37	37	666	7.770	66.045	435.897	2.324.784	10.295.472	38.608.020	124.403.620	348.330.136
38	38	703	8.436	73.815	501.942	2.760.681	12.620.256	48.903.492	163.011.640	472.733.756
39	39	741	9.139	82.251	575.757	3.262.623	15.380.937	61.523.748	211.915.132	635.745.396
40	40	780	9.880	91.390	658.008	3.838.380	18.643.560	76.904.685	273.438.880	847.660.528
41	41	820	10.660	101.270	749.398	4.496.388	22.481.940	95.548.245	350.343.565	1.121.099.408
42	42	861	11.480	111.930	850.668	5.245.786	26.978.328	118.030.185	445.891.810	1.471.442.973
43	43	903	12.341	123.410	962.598	6.096.454	32.224.114	145.008.513	563.921.995	1.917.334.783
44	44	946	13.244	135.751	1.086.008	7.059.052	38.320.568	177.232.627	708.930.508	2.481.256.778
45	45	990	14.190	148.995	1.221.759	8.145.060	45.379.620	215.553.195	886.163.135	3.190.187.286
46	46	1.035	15.180	163.185	1.370.754	9.366.819	53.524.680	260.932.815	1.101.716.330	4.076.350.421
47	47	1.081	16.215	178.365	1.533.939	10.737.573	62.891.499	314.457.495	1.362.649.145	5.178.066.751
48	48	1.128	17.296	194.580	1.712.304	12.271.512	73.629.072	377.348.994	1.677.106.640	6.540.715.896
49	49	1.176	18.424	211.876	1.906.884	13.983.816	85.900.584	450.978.066	2.054.455.634	8.217.822.536
50	50	1.225	19.600	230.300	2.118.760	15.890.700	99.884.400	536.878.650	2.505.433.700	10.272.278.170
51	51	1.275	20.825	249.900	2.349.060	18.009.460	115.775.100	636.763.050	3.042.312.350	12.777.711.870
52	52	1.326	22.100	270.725	2.598.960	20.358.520	133.784.560	752.538.150	3.679.075.400	15.820.024.220
53	53	1.378	23.426	292.825	2.869.685	22.957.480	154.143.080	886.322.710	4.431.613.550	19.499.099.620
54	54	1.431	24.804	316.251	3.162.510	25.827.165	177.100.560	1.040.465.790	5.317.936.260	23.930.713.170
55	55	1.485	26.235	341.055	3.478.761	28.989.675	202.927.725	1.217.566.350	6.358.402.050	29.248.649.430
56	56	1.540	27.720	367.290	3.819.816	32.468.436	231.917.400	1.420.494.075	7.575.968.400	35.607.051.480
57	57	1.596	29.260	395.010	4.187.106	36.288.252	264.385.836	1.652.411.475	8.996.462.475	43.183.019.880
58	58	1.653	30.856	424.270	4.582.116	40.475.358	300.674.088	1.916.797.311	10.648.873.950	52.179.482.355
59	59	1.711	32.509	455.126	5.006.386	45.057.474	341.149.446	2.217.471.399	12.565.671.261	62.828.356.305
60	60	1.770	34.220	487.635	5.461.512	50.063.860	386.206.920	2.558.620.845	14.783.142.660	75.394.027.566
61	61	1.830	35.990	521.855	5.949.147	55.525.372	436.270.780	2.944.827.765	17.341.763.505	90.177.170.226
62	62	1.891	37.820	557.845	6.471.002	61.474.519	491.796.152	3.381.098.545	20.286.591.270	107.518.933.731
63	63	1.953	39.711	595.665	7.028.847	67.945.521	553.270.671	3.872.894.697	23.667.689.815	127.805.525.001
64	64	2.016	41.664	635.376	7.624.512	74.974.368	621.216.192	4.426.165.368	27.540.584.512	151.473.214.816
65	65	2.080	43.680	677.040	8.259.888	82.598.880	696.190.560	5.047.381.560	31.966.749.880	179.013.799.328

# Tabelle 2: Binomialkoeffizienten

$$\binom{n}{r} = \frac{n!}{r!(n-r)!}$$

r	1	2	3	4	5	6	7	8	9	10
66	66	2.145	45.760	720.720	8.936.928	90.858.768	778.789.440	5.743.572.120	37.014.131.440	210.980.549.208
67	67	2.211	47.905	766.480	9.657.648	99.795.696	869.648.208	6.522.361.560	42.757.703.560	247.994.680.648
68	68	2.278	50.116	814.385	10.424.128	109.453.344	969.443.904	7.392.009.768	49.280.065.120	290.752.384.208
69	69	2.346	52.394	864.501	11.238.513	119.877.472	1.078.897.248	8.361.453.672	56.672.074.888	340.032.449.328
70	70	2.415	54.740	916.895	12.103.014	131.115.985	1.198.774.720	9.440.350.920	65.033.528.560	396.704.524.216
71	71	2.485	57.155	971.635	13.019.909	143.218.999	1.329.890.705	10.639.125.640	74.473.879.480	461.738.052.776
72	72	2.556	59.640	1.028.790	13.991.544	156.238.908	1.473.109.704	11.969.016.345	85.113.005.120	536.211.932.256
73	73	2.628	62.196	1.088.430	15.020.334	170.230.452	1.629.348.612	13.442.126.049	97.082.021.465	621.324.937.376
74	74	2.701	64.824	1.150.626	16.108.764	185.250.786	1.799.579.064	15.071.474.661	110.524.147.514	718.406.958.841
75	75	2.775	67.525	1.215.450	17.259.390	201.359.550	1.984.829.850	16.871.053.725	125.595.622.175	828.931.106.355
76	76	2.850	70.300	1.282.975	18.474.840	218.618.940	2.186.189.400	18.855.883.575	142.466.675.900	954.526.728.530
77	77	2.926	73.150	1.353.275	19.757.815	237.093.780	2.404.808.340	21.042.072.975	161.322.559.475	1.096.993.404.430
78	78	3.003	76.076	1.426.425	21.111.090	256.851.595	2.641.902.120	23.446.881.315	182.364.632.450	1.258.315.963.905
79	79	3.081	79.079	1.502.501	22.537.515	277.962.685	2.898.753.715	26.088.783.435	205.811.513.765	1.440.680.596.355
80	80	3.160	82.160	1.581.580	24.040.016	300.500.200	3.176.716.400	28.987.537.150	231.900.297.200	1.646.492.110.120
81	81	3.240	85.320	1.663.740	25.621.596	324.540.216	3.477.216.600	32.164.253.550	260.887.834.350	1.878.392.407.320
82	82	3.321	88.560	1.749.060	27.285.336	350.161.812	3.801.756.816	35.641.470.150	293.052.087.900	2.139.280.241.670
83	83	3.403	91.881	1.837.620	29.034.396	377.447.148	4.151.918.628	39.443.226.966	328.693.558.050	2.432.332.329.570
84	84	3.486	95.284	1.929.501	30.872.016	406.481.544	4.529.365.776	43.595.145.594	368.136.785.016	2.761.025.887.620
85	85	3.570	98.770	2.024.785	32.801.517	437.353.560	4.935.847.320	48.124.511.370	411.731.930.610	3.129.162.672.636
86	86	3.655	102.340	2.123.555	34.826.302	470.155.077	5.373.200.880	53.060.358.690	459.856.441.980	3.540.894.603.246
87	87	3.741	105.995	2.225.895	36.949.857	504.981.379	5.843.355.957	58.433.559.570	512.916.800.670	4.000.751.045.226
88	88	3.828	109.736	2.331.890	39.175.752	541.931.236	6.348.337.336	64.276.915.527	571.350.360.240	4.513.667.845.896
89	89	3.916	113.564	2.441.626	41.507.642	581.106.988	6.890.268.572	70.625.252.863	635.627.275.767	5.085.018.206.136
90	90	4.005	117.480	2.555.190	43.949.268	622.614.630	7.471.375.560	77.515.521.435	706.252.528.630	5.720.645.481.903
91	91	4.095	121.485	2.672.670	46.504.458	666.563.898	8.093.990.190	84.986.896.995	783.768.050.065	6.426.898.010.533
92	92	4.186	125.580	2.794.155	49.177.128	713.068.356	8.760.554.088	93.080.887.185	868.754.947.060	7.210.666.060.598
93	93	4.278	129.766	2.919.735	51.971.283	762.245.484	9.473.622.444	101.841.441.273	961.835.834.245	8.079.421.007.658
94	94	4.371	134.044	3.049.501	54.891.018	814.216.767	10.235.867.928	111.315.063.717	1.063.677.275.518	9.041.256.841.903
95	95	4.465	138.415	3.183.545	57.940.519	869.107.785	11.050.084.695	121.550.931.645	1.174.992.339.235	10.104.934.117.421
96	96	4.560	142.880	3.321.960	61.124.064	927.048.304	11.919.192.480	132.601.016.340	1.296.543.270.880	11.279.926.456.656
97	97	4.656	147.440	3.464.840	64.446.024	988.172.368	12.846.240.784	144.520.208.820	1.429.144.287.220	12.576.469.727.536
98	98	4.753	152.096	3.612.280	67.910.864	1.052.618.392	13.834.413.152	157.366.449.604	1.573.664.496.040	14.005.614.014.756
99	99	4.851	156.849	3.764.376	71.523.144	1.120.529.256	14.887.031.544	171.200.862.756	1.731.030.945.644	15.579.278.510.796
100	100	4.950	161.700	3.921.225	75.287.520	1.192.052.400	16.007.560.800	186.087.894.300	1.902.231.808.400	17.310.309.456.440