

Grassmannian packings

maintained by Henry Cohn

This table of Grassmannian packings was created by N. J. A. Sloane based on joint work with R. H. Hardin and J. H. Conway in *Packing lines, planes, etc.: packings in Grassmannian spaces* (Experiment. Math. **5** (1996), 139–159, <https://projecteuclid.org/euclid.em/1047565645>). Sloane has since retired from AT&T Labs, and I've taken over maintaining the table. Please let me know if you can improve on any of these records.

See [the paper](#) for definitions and background. The squared chordal distance column lists the largest value known for any packing of N subspaces of dimension n in m dimensions, while the bound column lists the minimum of the simplex and orthoplex bounds from Section 5 of the paper and the trivial upper bound $d^2 \leq n$. This upper bound is always rounded up, while the squared chordal distance is rounded down. Cases in which these bounds agree up to rounding are marked with \star , and the notes column gives credit for improvements to the original table or further information, such as whether the listed upper bound is tight (i.e., whether there exists a code that exactly meets the bound).

The file `GrassmannianData.tar` is a tar file containing files with the coordinates for all these packings. The file names are of the form m - n - N .`txt`, and the files list one vector per line, with m coordinates separated by commas. The first n lines specify an orthonormal basis for the first subspace, and so on.

PACKINGS OF N SUBSPACES OF DIMENSION n IN m DIMENSIONS

m	n	N	Squared chordal distance	Bound	Notes	
\star	3	1	3	0.9999999999	1.0000000000	tight bound
\star	3	1	4	0.8888888888	0.8888888889	tight bound
	3	1	5	0.7999999999	0.8333333334	
\star	3	1	6	0.7999999999	0.8000000000	tight bound
\star	3	1	7	0.6666666666	0.6666666667	tight bound
	3	1	8	0.5806285146	0.6666666667	
	3	1	9	0.5519540855	0.6666666667	
	3	1	10	0.5292109924	0.6666666667	
	3	1	11	0.4895833489		
	3	1	12	0.4456887214		
	3	1	13	0.4099649711		
	3	1	14	0.3906289921		
	3	1	15	0.3813256141		
	3	1	16	0.3685242696		
	3	1	17	0.3328546988		
	3	1	18	0.3193305211		
	3	1	19	0.3000093877		
	3	1	20	0.2919740686		Henry Cohn
	3	1	21	0.2842099468		
	3	1	22	0.2793283319		Henry Cohn
	3	1	23	0.2576904035		
	3	1	24	0.2524640360		
	3	1	25	0.2387298379		
	3	1	26	0.2308000834		
	3	1	27	0.2240235782		
	3	1	28	0.2181978117		
	3	1	29	0.2135612070		Henry Cohn
	3	1	30	0.2060838295		
	3	1	31	0.1990747916		Henry Cohn
	3	1	32	0.1914782380		

3	1	33	0.1863557638	
3	1	34	0.1820514756	
3	1	35	0.1768735418	
3	1	36	0.1729747303	Henry Cohn
3	1	37	0.1691590043	
3	1	38	0.1665865511	
3	1	39	0.1634073776	
3	1	40	0.1568275595	
3	1	41	0.1525644706	
3	1	42	0.1490203035	Henry Cohn
3	1	43	0.1469199176	
3	1	44	0.1427787500	
3	1	45	0.1409132492	
3	1	46	0.1384267791	
3	1	47	0.1362442070	
3	1	48	0.1339227101	
3	1	49	0.1303178440	Henry Cohn
3	1	50	0.1271717953	
3	1	51	0.1248325687	
3	1	52	0.1225471344	
3	1	53	0.1200068656	
3	1	54	0.1187276434	
3	1	55	0.1181408051	
3	1	56	0.1153881344	
3	1	57	0.1130094048	
3	1	58	0.1112963897	
3	1	59	0.1094202828	
3	1	60	0.1079786078	
3	1	61	0.1058337052	
3	1	62	0.1040628389	
3	1	63	0.1026596833	
3	1	64	0.1007631182	
3	1	65	0.0995552859	
3	1	66	0.0988730140	
3	1	67	0.0973798467	
3	1	68	0.0957307154	
3	1	69	0.0944620044	
3	1	70	0.0931842108	
3	1	71	0.0923400297	
3	1	72	0.0907725400	
3	1	73	0.0894325531	
3	1	74	0.0881090083	
3	1	75	0.0873636758	
3	1	76	0.0858019307	
3	1	77	0.0847837082	
3	1	78	0.0838816514	
3	1	79	0.0829424354	
3	1	80	0.0820619807	
3	1	81	0.0816197151	
3	1	82	0.0800907000	
3	1	83	0.0791280787	

3	1	84	0.0782589235		
3	1	85	0.0772139462		
3	1	86	0.0762812879		
3	1	87	0.0753880849		
3	1	88	0.0745981575		
3	1	89	0.0737475107		
3	1	90	0.0729197209		
3	1	91	0.0721306290		
3	1	92	0.0714685997		
3	1	93	0.0708630407		
3	1	94	0.0705147088		
3	1	95	0.0697190232		
3	1	96	0.0693819975		
3	1	97	0.0683016542		
3	1	98	0.0675501385		
3	1	99	0.0668607357		
3	1	100	0.0660334821		
*	4	1	3	0.9999999999	1.0000000000 tight bound
*	4	1	4	0.9999999999	1.0000000000 tight bound
*	4	1	5	0.9374999999	0.9375000000 tight bound
	4	1	6	0.8888888888	0.9000000000
	4	1	7	0.8475970508	0.8750000000
	4	1	8	0.8284271247	0.8571428572
	4	1	9	0.8114195153	0.8437500000
	4	1	10	0.8114195153	0.8333333334
*	4	1	11	0.7499999999	0.7500000000 tight bound
*	4	1	12	0.7499999999	0.7500000000 tight bound
	4	1	13	0.6786070758	0.7500000000
	4	1	14	0.6518097061	0.7500000000
	4	1	15	0.6294363286	0.7500000000
	4	1	16	0.6180339887	0.7500000000
	4	1	17	0.6020261183	0.7500000000
	4	1	18	0.5946802049	0.7500000000
	4	1	19	0.5818451952	
	4	1	20	0.5736095486	
	4	1	21	0.5617658936	Henry Cohn
	4	1	22	0.5480896962	
	4	1	23	0.5263485431	
	4	1	24	0.5182842211	
	4	1	25	0.4990766254	
	4	1	26	0.4887185391	
	4	1	27	0.4747566702	
	4	1	28	0.4678482018	
	4	1	29	0.4593349488	
	4	1	30	0.4523394115	
	4	1	31	0.4480628262	
	4	1	32	0.4469610677	
	4	1	33	0.4383332608	
	4	1	34	0.4294553058	Henry Cohn
	4	1	35	0.4258133864	
	4	1	36	0.4240825190	Henry Cohn

4	1	37	0.4208973371
4	1	38	0.4207805760
4	1	39	0.4076758638
4	1	40	0.3964466094
4	1	41	0.3881129253
4	1	42	0.3842853799
4	1	43	0.3753731411
4	1	44	0.3680198551
4	1	45	0.3641925285
4	1	46	0.3621764445
4	1	47	0.3554045213
4	1	48	0.3514540474
4	1	49	0.3477892791
4	1	50	0.3468281123
4	1	51	0.3455957837
4	1	52	0.3454936139
4	1	53	0.3454915029
4	1	54	0.3454915028
4	1	55	0.3454915028
4	1	56	0.3454915028
4	1	57	0.3454915028
4	1	58	0.3454915028
4	1	59	0.3454915028
4	1	60	0.3454915028
4	1	61	0.3105415016
4	1	62	0.3078371678
4	1	63	0.3057002686
4	1	64	0.3011043587
4	1	65	0.2981248999
4	1	66	0.2952332409
4	1	67	0.2924559270
4	1	68	0.2896631773
4	1	69	0.2867050448
4	1	70	0.2843016771
4	1	71	0.2808358777
4	1	72	0.2780126477
4	1	73	0.2757168339
4	1	74	0.2731425655
4	1	75	0.2711333377
4	1	76	0.2705772291
4	1	77	0.2669576521
4	1	78	0.2652907180
4	1	79	0.2634342657
4	1	80	0.2622051439
4	1	81	0.2605326148
4	1	82	0.2589658623
4	1	83	0.2580022875
4	1	84	0.2569464254
4	1	85	0.2559681808
4	1	86	0.2541576422
4	1	87	0.2531183733

Henry Cohn

Henry Cohn

4	1	88	0.2517548171		
4	1	89	0.2500341112		
4	1	90	0.2489408103		
4	1	91	0.2478733178		
4	1	92	0.2462380417		
4	1	93	0.2431222205		
4	1	94	0.2415782915		
4	1	95	0.2410949781		
4	1	96	0.2402323661		
4	1	97	0.2396265587		
4	1	98	0.2360782975		
4	1	99	0.2330121598		
4	1	100	0.2313643538		
*	4	2	3	1.4999999999	1.5000000000 tight bound [4]
*	4	2	4	1.3333333333	1.3333333334 tight bound [4]
*	4	2	5	1.2499999999	1.2500000000 tight bound [4]
*	4	2	6	1.1999999999	1.2000000000 tight bound [4]
*	4	2	7	1.1666666666	1.1666666667 tight bound [3]
*	4	2	8	1.1428571428	1.1428571429 tight bound [3]
	4	2	9	1.1230624449	1.1250000000
*	4	2	10	1.1111111111	1.1111111112 tight bound [4]
*	4	2	11	0.9999999999	1.0000000000 tight bound [4]
*	4	2	12	0.9999999999	1.0000000000 tight bound [4]
*	4	2	13	0.9999999999	1.0000000000 tight bound [4]
*	4	2	14	0.9999999999	1.0000000000 tight bound [4]
*	4	2	15	0.9999999999	1.0000000000 tight bound [4]
*	4	2	16	0.9999999999	1.0000000000 tight bound [4]
*	4	2	17	0.9999999999	1.0000000000 tight bound [4]
*	4	2	18	1.0000000000	1.0000000000 tight bound [4]
	4	2	19	0.9090909090	
	4	2	20	0.9090909090	
	4	2	21	0.8683658001	
	4	2	22	0.8628666150	
	4	2	23	0.8450645945	
	4	2	24	0.8371591062	
	4	2	25	0.8275329668	
	4	2	26	0.8143605100	
	4	2	27	0.8056026757	
	4	2	28	0.8004820811	
	4	2	29	0.7888843622	
	4	2	30	0.7809079178	
	4	2	31	0.7760213858	
	4	2	32	0.7690588539	
	4	2	33	0.7591707968	
	4	2	34	0.7548790292	
	4	2	35	0.7489100760	
	4	2	36	0.7476820831	
	4	2	37	0.7286336898	
	4	2	38	0.7197930166	
	4	2	39	0.7095125538	
	4	2	40	0.7066332130	

4	2	41	0.6991501607
4	2	42	0.6948392861
4	2	43	0.6873492339
4	2	44	0.6830542529
4	2	45	0.6809212206
4	2	46	0.6793062616
4	2	47	0.6732073544
4	2	48	0.6666666666
4	2	49	0.6666666666
4	2	50	0.6666666666
4	2	51	0.6451736243
4	2	52	0.6418388415
4	2	53	0.6386335039
4	2	54	0.6352433706
4	2	55	0.6261328087
4	2	56	0.6209010269
4	2	57	0.6165526639
4	2	58	0.6117237441
4	2	59	0.6068425752
4	2	60	0.6034819166
4	2	61	0.5965096744
4	2	62	0.5940066796
4	2	63	0.5914380371
4	2	64	0.5886499936
4	2	65	0.5874799268
4	2	66	0.5861433262
4	2	67	0.5813543366
4	2	68	0.5747791689
4	2	69	0.5724737529
4	2	70	0.5711761177
4	2	71	0.5701324984
4	2	72	0.5693277415
4	2	73	0.5568283864
4	2	74	0.5519878460
4	2	75	0.5482525630
4	2	76	0.5455746922
4	2	77	0.5371513899
4	2	78	0.5351790868
4	2	79	0.5313580520
4	2	80	0.5283330696
4	2	81	0.5253256670
4	2	82	0.5229513551
4	2	83	0.5205961394
4	2	84	0.5202100447
4	2	85	0.5180517909
4	2	86	0.5151194839
4	2	87	0.5142077874
4	2	88	0.5140751665
4	2	89	0.5138966061
4	2	90	0.5135005785
4	2	91	0.5091747480

4	2	92	0.5082491411		
4	2	93	0.5071006338		
4	2	94	0.5060761145		
4	2	95	0.5041046164		
4	2	96	0.5022838770		
4	2	97	0.5017034805		
4	2	98	0.5015831202		
4	2	99	0.5010215202		
4	2	100	0.5008698794		
*	5	1	3	0.9999999999	1.0000000000 tight bound
*	5	1	4	0.9999999999	1.0000000000 tight bound
*	5	1	5	0.9999999999	1.0000000000 tight bound
*	5	1	6	0.9599999999	0.9600000000 tight bound
	5	1	7	0.9180848294	0.9333333334
	5	1	8	0.8918889086	0.9142857143
	5	1	9	0.8888888888	0.9000000000
*	5	1	10	0.8888888888	0.8888888889 tight bound
	5	1	11	0.8505085833	0.8800000000
	5	1	12	0.8475970508	0.8727272728
	5	1	13	0.8310735125	0.8666666667
	5	1	14	0.8309716701	0.8615384616
	5	1	15	0.8284271247	0.8571428572
*	5	1	16	0.7999999999	0.8000000000 tight bound
	5	1	17	0.7687255466	0.8000000000
	5	1	18	0.7657449677	0.8000000000
	5	1	19	0.7499999999	0.8000000000
	5	1	20	0.7499999999	0.8000000000
	5	1	21	0.7065913748	0.8000000000
	5	1	22	0.6930459625	0.8000000000
	5	1	23	0.6806452012	0.8000000000 Henry Cohn
	5	1	24	0.6747429559	0.8000000000
	5	1	25	0.6691901151	0.8000000000
	5	1	26	0.6580165705	0.8000000000
	5	1	27	0.6468567046	0.8000000000
	5	1	28	0.6421785148	0.8000000000
	5	1	29	0.6381208536	
	5	1	30	0.6341436694	
	5	1	31	0.6279257366	
	5	1	32	0.6266920713	
	5	1	33	0.6251305099	
	5	1	34	0.6184811046	
	5	1	35	0.6180339887	
	5	1	36	0.6180339887	
	5	1	37	0.6180339887	
	5	1	38	0.5931996071	Henry Cohn
	5	1	39	0.5878735003	
	5	1	40	0.5799099406	Henry Cohn
	5	1	41	0.5740768631	
	5	1	42	0.5643156569	Henry Cohn
	5	1	43	0.5592548163	
	5	1	44	0.5539224156	

5	1	45	0.5483442914
5	1	46	0.5414095503
5	1	47	0.5354411586
5	1	48	0.5298355194
5	1	49	0.5250314330
5	1	50	0.5202555592
5	1	51	0.5142255856
5	1	52	0.5101712776
5	1	53	0.5068315358
5	1	54	0.5034833822
5	1	55	0.4996290809
5	1	56	0.4977921180
5	1	57	0.4956361756
5	1	58	0.4919358685
5	1	59	0.4895402100
5	1	60	0.4875191073
5	1	61	0.4863691278
5	1	62	0.4812842490
5	1	63	0.4786022141
5	1	64	0.4756216481
5	1	65	0.4734766745
5	1	66	0.4706285787
5	1	67	0.4683085185
5	1	68	0.4660646217
5	1	69	0.4642923398
5	1	70	0.4628403680
5	1	71	0.4607599182
5	1	72	0.4588738484
5	1	73	0.4571471623
5	1	74	0.4561092407
5	1	75	0.4548400726
5	1	76	0.4525345330
5	1	77	0.4492901527
5	1	78	0.4463644226
5	1	79	0.4448778309
5	1	80	0.4416523625
5	1	81	0.4383214762
5	1	82	0.4356162671
5	1	83	0.4336216395
5	1	84	0.4310365993
5	1	85	0.4284680845
5	1	86	0.4263419158
5	1	87	0.4228189406
5	1	88	0.4204097656
5	1	89	0.4172422362
5	1	90	0.4148622928
5	1	91	0.4125488092
5	1	92	0.4099314220
5	1	93	0.4070101986
5	1	94	0.4047564145
5	1	95	0.4021847400

Henry Cohn

5	1	96	0.3999875102			
5	1	97	0.3977256548			
5	1	98	0.3957004779			
5	1	99	0.3937862470			
5	1	100	0.3918423693			
5	2	3	1.7499999999	1.8000000000		
*	5	2	4	1.5999999999	1.6000000000 tight bound [3]	
*	5	2	5	1.4999999999	1.5000000000 tight bound [3]	
*	5	2	6	1.4399999999	1.4400000000 tight bound [3]	
*	5	2	7	1.3999999999	1.4000000000 tight bound [3]	
*	5	2	8	1.3714285714	1.3714285715 tight bound [3]	
*	5	2	9	1.3499999999	1.3500000000 tight bound [3]	
*	5	2	10	1.3333333333	1.3333333334 tight bound [3]	
*	5	2	11	1.3199999999	1.3200000000 tight bound [3]	
5	2	12	1.3063520860	1.3090909091		
5	2	13	1.2941906871	1.3000000000		
5	2	14	1.2790114729	1.2923076924		
5	2	15	1.2707462652	1.2857142858		
*	5	2	16	1.1999999999	1.2000000000	
*	5	2	17	1.1999999999	1.2000000000	
5	2	18	1.1908530119	1.2000000000		
5	2	19	1.1761278309	1.2000000000		
5	2	20	1.1619417514	1.2000000000		
5	2	21	1.1542745973	1.2000000000		
5	2	22	1.1419030833	1.2000000000		
5	2	23	1.1332177715	1.2000000000		
5	2	24	1.1251403012	1.2000000000		
5	2	25	1.1178106155	1.2000000000		
5	2	26	1.1113470553	1.2000000000		
5	2	27	1.1044758153	1.2000000000		
5	2	28	1.0989455424	1.2000000000		
5	2	29	1.0936717022			
5	2	30	1.0874780286			
5	2	31	1.0828576060			
5	2	32	1.0768083597			
5	2	33	1.0722129865			
5	2	34	1.0671267695			
5	2	35	1.0640453885			
5	2	36	1.0595901891			
5	2	37	1.0530112658			
5	2	38	1.0462170817			
5	2	39	1.0404669576			
5	2	40	1.0354930698			
5	2	41	1.0302008769			
5	2	42	1.0256304636			
5	2	43	1.0206811105			
5	2	44	1.0160232501			
5	2	45	1.0123028605			
5	2	46	1.0083490289			
5	2	47	1.0041839980			
5	2	48	1.0004897361			

5	2	49	0.9960708015
5	2	50	0.9909795337
5	2	51	0.9859553022
5	2	52	0.9793165685
5	2	53	0.9744234857
5	2	54	0.9691842943
5	2	55	0.9640070895
5	2	56	0.9595523020
5	2	57	0.9552049081
5	2	58	0.9508182269
5	2	59	0.9476497246
5	2	60	0.9433464971
5	2	61	0.9395372634
5	2	62	0.9358126747
5	2	63	0.9325153597
5	2	64	0.9299448338
5	2	65	0.9270049360
5	2	66	0.9242488409
5	2	67	0.9207887560
5	2	68	0.9183969493
5	2	69	0.9159690207
5	2	70	0.9129655235
5	2	71	0.9106042409
5	2	72	0.9085215953
5	2	73	0.9062459577
5	2	74	0.9044783404
5	2	75	0.9019207505
5	2	76	0.9002160140
5	2	77	0.8978108956
5	2	78	0.8952756903
5	2	79	0.8928232175
5	2	80	0.8905750842
5	2	81	0.8885532618
5	2	82	0.8861275165
5	2	83	0.8838574577
5	2	84	0.8817189815
5	2	85	0.8794881243
5	2	86	0.8773447972
5	2	87	0.8749526086
5	2	88	0.8729021574
5	2	89	0.8705823658
5	2	90	0.8683411832
5	2	91	0.8659446234
5	2	92	0.8639959068
5	2	93	0.8615902565
5	2	94	0.8590307301
5	2	95	0.8569011419
5	2	96	0.8546291110
5	2	97	0.8523999461
5	2	98	0.8500886646
5	2	99	0.8481295242

5	2	100	0.8458789916		
*	6	1 3	0.9999999999	1.0000000000	tight bound
*	6	1 4	0.9999999999	1.0000000000	tight bound
*	6	1 5	0.9999999999	1.0000000000	tight bound
*	6	1 6	0.9999999999	1.0000000000	tight bound
*	6	1 7	0.9722222222	0.9722222223	tight bound
	6	1 8	0.9419464180	0.9523809524	
	6	1 9	0.9225724578	0.9375000000	
	6	1 10	0.9211646096	0.9259259260	
	6	1 11	0.8999999999	0.9166666667	
	6	1 12	0.8999999999	0.9090909091	
	6	1 13	0.8888888888	0.9027777778	
	6	1 14	0.8888888888	0.8974358975	
	6	1 15	0.8888888888	0.8928571429	
*	6	1 16	0.8888888888	0.8888888889	tight bound
	6	1 17	0.8610152062	0.8854166667	Henry Cohn
	6	1 18	0.8524029546	0.8823529412	Henry Cohn
	6	1 19	0.8519454666	0.8796296297	
	6	1 20	0.8485780899	0.8771929825	
	6	1 21	0.8475970508	0.8750000000	
*	6	1 22	0.8333333333	0.8333333334	tight bound
	6	1 23	0.8033321578	0.8333333334	
	6	1 24	0.8024691358	0.8333333334	
	6	1 25	0.7857005372	0.8333333334	
	6	1 26	0.7757890871	0.8333333334	
	6	1 27	0.7709320486	0.8333333334	
	6	1 28	0.7581504237	0.8333333334	Henry Cohn
	6	1 29	0.7520288794	0.8333333334	
	6	1 30	0.7505950826	0.8333333334	Henry Cohn
	6	1 31	0.7499999999	0.8333333334	
	6	1 32	0.7499999999	0.8333333334	
	6	1 33	0.7499999999	0.8333333334	
	6	1 34	0.7499999999	0.8333333334	
	6	1 35	0.7499999999	0.8333333334	
	6	1 36	0.7499999999	0.8333333334	
	6	1 37	0.7150548581	0.8333333334	Henry Cohn
	6	1 38	0.7050520410	0.8333333334	
	6	1 39	0.7007458928	0.8333333334	
	6	1 40	0.6881048262	0.8333333334	
	6	1 41	0.6843894789		
	6	1 42	0.6810730817		
	6	1 43	0.6775225130		
	6	1 44	0.6730735629		
	6	1 45	0.6709769754		
	6	1 46	0.6707778161		
	6	1 47	0.6666666666		
	6	1 48	0.6643346381		
	6	1 49	0.6628350222		
	6	1 50	0.6597957340		
	6	1 51	0.6573664811		
	6	1 52	0.6549597388		

6	1	53	0.6517585469		
6	1	54	0.6471734966		
6	1	55	0.6458172024		
6	1	56	0.6445601535		
6	1	57	0.6422316301		
6	1	58	0.6413545088		
6	1	59	0.6408108766		
6	1	60	0.6408108766		
6	1	61	0.6288607578		
6	1	62	0.6259208503		
6	1	63	0.6249999999		
6	1	64	0.6153602475		
6	1	65	0.6105682359		
6	1	66	0.6073956653		
6	1	67	0.6042661694		
6	1	68	0.6007247662		
6	1	69	0.5970054012		
6	1	70	0.5934453317		
6	1	71	0.5902148793		
6	1	72	0.5871115013		
6	1	73	0.5839833402		
6	1	74	0.5815310094		
6	1	75	0.5783753807		
6	1	76	0.5747784532		
6	1	77	0.5717458998		
6	1	78	0.5683656246		
6	1	79	0.5654040319		
6	1	80	0.5626916126		
6	1	81	0.5597843410		
6	1	82	0.5570452954		
6	1	83	0.5542475706		
6	1	84	0.5516596619		
6	1	85	0.5496095748		
6	1	86	0.5466722586		
6	1	87	0.5443435724		
6	1	88	0.5423055738		
6	1	89	0.5410890736		
6	1	90	0.5403777598		
6	1	91	0.5356260482		
6	1	92	0.5334132190		
6	1	93	0.5314755905		
6	1	94	0.5295919736		
6	1	95	0.5280243126		
6	1	96	0.5262807474		
6	1	97	0.5253380392		
6	1	98	0.5246693560		
6	1	99	0.5234407485		
6	1	100	0.5225120511		
*	6	2	3	1.9999999999	2.0000000000 tight bound [3]
*	6	2	4	1.7777777777	1.7777777778 tight bound [3]
*	6	2	5	1.6666666666	1.6666666667 tight bound [3]

* 6	2	6	1.5999999999	1.6000000000	tight bound [3]
* 6	2	7	1.5555555555	1.5555555556	tight bound [3]
* 6	2	8	1.5238095238	1.5238095239	tight bound [3]
* 6	2	9	1.4999999999	1.5000000000	tight bound [4]
* 6	2	10	1.4814814814	1.4814814815	tight bound [3]
* 6	2	11	1.4666666666	1.4666666667	tight bound [3]
* 6	2	12	1.4545454545	1.4545454546	tight bound [3]
* 6	2	13	1.4444444444	1.4444444445	tight bound [3]
* 6	2	14	1.4358974358	1.4358974359	tight bound [3]
6	2	15	1.4285668598	1.4285714286	
6	2	16	1.4210084212	1.4222222223	
6	2	17	1.4127250337	1.4166666667	
6	2	18	1.4047583969	1.4117647059	
6	2	19	1.3948290755	1.4074074075	
6	2	20	1.3887598649	1.4035087720	
6	2	21	1.3821363792	1.4000000000	
* 6	2	22	1.3333333333	1.3333333334	
* 6	2	23	1.3333333333	1.3333333334	
6	2	24	1.3325968962	1.3333333334	
6	2	25	1.3229201727	1.3333333334	
6	2	26	1.3151115938	1.3333333334	
6	2	27	1.3071354482	1.3333333334	
6	2	28	1.2987494813	1.3333333334	
6	2	29	1.2887480533	1.3333333334	
6	2	30	1.2803723341	1.3333333334	
6	2	31	1.2683924399	1.3333333334	
6	2	32	1.2590136697	1.3333333334	
6	2	33	1.2525697988	1.3333333334	
6	2	34	1.2447031126	1.3333333334	
6	2	35	1.2430079033	1.3333333334	
6	2	36	1.2344708713	1.3333333334	
6	2	37	1.2276166051	1.3333333334	
6	2	38	1.2239376175	1.3333333334	
6	2	39	1.2205828463	1.3333333334	
6	2	40	1.2149153244	1.3333333334	
6	2	41	1.2115353844		
6	2	42	1.2079375907		
6	2	43	1.2036740337		
6	2	44	1.2007477223		
6	2	45	1.1970435093		
6	2	46	1.1955236435		
6	2	47	1.1927054640		
6	2	48	1.1907500968		
6	2	49	1.1874860499		
6	2	50	1.1841430338		
6	2	51	1.1816449842		
6	2	52	1.1790350370		
6	2	53	1.1752417288		
6	2	54	1.1726203520		
6	2	55	1.1709677900		
6	2	56	1.1686951904		

6	2	57	1.1669485036			
6	2	58	1.1646036685			
6	2	59	1.1636012015			
6	2	60	1.1605380939			
6	2	61	1.1592565267			
6	2	62	1.1563685263			
6	2	63	1.1534349093			
6	2	64	1.1502193651			
6	2	65	1.1462940857			
6	2	66	1.1440936287			
6	2	67	1.1405648287			
6	2	68	1.1385033505			
6	2	69	1.1353800766			
6	2	70	1.1325487156			
6	2	71	1.1317589395			
6	2	72	1.1307823543			
6	2	73	1.1292234424			
6	2	74	1.1283378031			
6	2	75	1.1269926838			
6	2	76	1.1217945827			
6	2	77	1.1167335916			
6	2	78	1.1128464512			
6	2	79	1.1085974370			
6	2	80	1.1054673384			
6	2	81	1.1023649207			
6	2	82	1.0994449841			
6	2	83	1.0968005857			
6	2	84	1.0948369706			
6	2	85	1.0932604315			
6	2	86	1.0899901239			
6	2	87	1.0877593288			
6	2	88	1.0854576425			
6	2	89	1.0832085511			
6	2	90	1.0813145841			
6	2	91	1.0787028526			
6	2	92	1.0774951976			
6	2	93	1.0749489149			
6	2	94	1.0724303637			
6	2	95	1.0710584338			
6	2	96	1.0681970178			
6	2	97	1.0663204323			
6	2	98	1.0642587442			
6	2	99	1.0623180796			
6	2	100	1.0600574437			
*	6	3	3	2.2499999999	2.2500000000	tight bound [3]
*	6	3	4	1.9999999999	2.0000000000	tight bound [3]
*	6	3	5	1.8749999999	1.8750000000	tight bound [3]
*	6	3	6	1.7999999999	1.8000000000	tight bound [3]
*	6	3	7	1.7499999999	1.7500000000	tight bound [3]
*	6	3	8	1.7142857142	1.7142857143	tight bound [3]
*	6	3	9	1.6874999999	1.6875000000	tight bound [3]

* 6	3	10	1.6666666666	1.6666666667	tight bound [3]
* 6	3	11	1.6499999999	1.6500000000	tight bound [3]
* 6	3	12	1.6363636363	1.6363636364	tight bound [3]
* 6	3	13	1.6249999999	1.6250000000	tight bound [3]
* 6	3	14	1.6153846153	1.6153846154	tight bound [3]
* 6	3	15	1.6071428571	1.6071428572	tight bound [3]
* 6	3	16	1.5999999999	1.6000000000	tight bound [3]
6	3	17	1.5937499963	1.5937500000	unclear whether bound is tight
6	3	18	1.5881502528	1.5882352942	
6	3	19	1.5818405394	1.5833333334	
6	3	20	1.5780693377	1.5789473685	
6	3	21	1.5735218412	1.5750000000	
* 6	3	22	1.4999999999	1.5000000000	
* 6	3	23	1.4999999999	1.5000000000	
* 6	3	24	1.4999999999	1.5000000000	
* 6	3	25	1.4999999999	1.5000000000	
* 6	3	26	1.4999999999	1.5000000000	
* 6	3	27	1.4999999999	1.5000000000	
* 6	3	28	1.4999999999	1.5000000000	
* 6	3	29	1.4999999999	1.5000000000	
* 6	3	30	1.4999999999	1.5000000000	
* 6	3	31	1.4999999999	1.5000000000	
* 6	3	32	1.4999999999	1.5000000000	
* 6	3	33	1.4999999999	1.5000000000	
* 6	3	34	1.4999999999	1.5000000000	
6	3	35	1.4999790749	1.5000000000	
6	3	36	1.4999749561	1.5000000000	
6	3	37	1.4998599873	1.5000000000	
6	3	38	1.4998288205	1.5000000000	
6	3	39	1.4997976429	1.5000000000	
6	3	40	1.4997712615	1.5000000000	
6	3	41	1.4297222744		
6	3	42	1.4231484347		
6	3	43	1.3975595909		
6	3	44	1.3894247196		
6	3	45	1.3772905258		
6	3	46	1.3696725240		
6	3	47	1.3634363253		
6	3	48	1.3578030702		
6	3	49	1.3542944243		
6	3	50	1.3500545862		
6	3	51	1.3459853355		
6	3	52	1.3442326620		
6	3	53	1.3419575414		
6	3	54	1.3399765372		
6	3	55	1.3381181039		
6	3	56	1.3359596171		
6	3	57	1.3338283840		
6	3	58	1.3323120718		
6	3	59	1.3306292939		
6	3	60	1.3288903369		

6	3	61	1.3263929129		
6	3	62	1.3228485128		
6	3	63	1.3195098424		
6	3	64	1.3159623462		
6	3	65	1.3124920897		
6	3	66	1.3099925448		
6	3	67	1.3057536632		
6	3	68	1.3031134007		
6	3	69	1.2997741461		
6	3	70	1.2979919058		
6	3	71	1.2974643049		
6	3	72	1.2941627120		
6	3	73	1.2926475323		
6	3	74	1.2906178794		
6	3	75	1.2883858393		
6	3	76	1.2860607212		
6	3	77	1.2837399706		
6	3	78	1.2820332874		
6	3	79	1.2794045677		
6	3	80	1.2774513927		
6	3	81	1.2750874777		
6	3	82	1.2733119875		
6	3	83	1.2718321581		
6	3	84	1.2699317880		
6	3	85	1.2678980788		
6	3	86	1.2663115061		
6	3	87	1.2645392981		
6	3	88	1.2626284684		
6	3	89	1.2605294603		
6	3	90	1.2587028763		
6	3	91	1.2570913180		
6	3	92	1.2547466351		
6	3	93	1.2514357315		
6	3	94	1.2488921230		
6	3	95	1.2462640722		
6	3	96	1.2433375741		
6	3	97	1.2408008155		
6	3	98	1.2381932424		
6	3	99	1.2357149907		
6	3	100	1.2333650196		
*	7	1	3	0.9999999999	1.0000000000 tight bound
*	7	1	4	0.9999999999	1.0000000000 tight bound
*	7	1	5	0.9999999999	1.0000000000 tight bound
*	7	1	6	0.9999999999	1.0000000000 tight bound
*	7	1	7	0.9999999999	1.0000000000 tight bound
*	7	1	8	0.9795918367	0.9795918368 tight bound
	7	1	9	0.9599999999	0.9642857143
	7	1	10	0.9442719099	0.9523809524
	7	1	11	0.9331689892	0.9428571429
	7	1	12	0.9256198347	0.9350649351
	7	1	13	0.9230769230	0.9285714286

★	7	1	14	0.9230769230	0.9230769231	tight bound
	7	1	15	0.9000282686	0.9183673470	Henry Cohn [2]
	7	1	16	0.8938560428	0.9142857143	
	7	1	17	0.8897094111	0.9107142858	Henry Cohn
	7	1	18	0.8891507537	0.9075630253	
	7	1	19	0.8888888888	0.9047619048	
	7	1	20	0.8888888888	0.9022556391	
	7	1	21	0.8888888888	0.9000000000	
	7	1	22	0.8888888888	0.8979591837	
	7	1	23	0.8888888888	0.8961038962	
	7	1	24	0.8888888888	0.8944099379	
	7	1	25	0.8888888888	0.8928571429	
	7	1	26	0.8888888888	0.8914285715	
	7	1	27	0.8888888888	0.8901098902	
★	7	1	28	0.8888888888	0.8888888889	tight bound
	7	1	29	0.8445312981	0.8571428572	
	7	1	30	0.8313918026	0.8571428572	
	7	1	31	0.8240479088	0.8571428572	
	7	1	32	0.8176602923	0.8571428572	
	7	1	33	0.8163265306	0.8571428572	
	7	1	34	0.8163265306	0.8571428572	
	7	1	35	0.8163265306	0.8571428572	
	7	1	36	0.8163265306	0.8571428572	
	7	1	37	0.7850659638	0.8571428572	
	7	1	38	0.7816698097	0.8571428572	
	7	1	39	0.7753229118	0.8571428572	
	7	1	40	0.7705490202	0.8571428572	
	7	1	41	0.7673678170	0.8571428572	
	7	1	42	0.7623383004	0.8571428572	
	7	1	43	0.7578080192	0.8571428572	
	7	1	44	0.7554562662	0.8571428572	
	7	1	45	0.7534412829	0.8571428572	
	7	1	46	0.7516619228	0.8571428572	
	7	1	47	0.7506542588	0.8571428572	
	7	1	48	0.7501748571	0.8571428572	
	7	1	49	0.7499999999	0.8571428572	
	7	1	50	0.7499999999	0.8571428572	
	7	1	51	0.7499999999	0.8571428572	
	7	1	52	0.7499999999	0.8571428572	
	7	1	53	0.7499999999	0.8571428572	
	7	1	54	0.7499999999	0.8571428572	
	7	1	55	0.7499999999		
	7	1	56	0.7499999999		
	7	1	57	0.7499999999		
	7	1	58	0.7499999999		
	7	1	59	0.7499999999		
	7	1	60	0.7499999999		
	7	1	61	0.7499999999		
	7	1	62	0.7499999999		
	7	1	63	0.7499999999		
	7	1	64	0.7272727272		

7	1	65	0.7100966624		
7	1	66	0.7092419703		
7	1	67	0.7026520710		
7	1	68	0.6996862692		
7	1	69	0.6976109515		
7	1	70	0.6953596727		
7	1	71	0.6929495862		
7	1	72	0.6922508375		
7	1	73	0.6905244807		
7	1	74	0.6893529994		
7	1	75	0.6884389065		
7	1	76	0.6879253343		
7	1	77	0.6854109241		
7	1	78	0.6848575829		
7	1	79	0.6829044957		
7	1	80	0.6821181597		
7	1	81	0.6818728582		
7	1	82	0.6789136560		
7	1	83	0.6779723038		
7	1	84	0.6761564392		
7	1	85	0.6740741367		
7	1	86	0.6692497584		
7	1	87	0.6690022597		
7	1	88	0.6684937216		
7	1	89	0.6680051825		
7	1	90	0.6677412055		
7	1	91	0.6666666666		
7	1	92	0.6501548456		
7	1	93	0.6481425124		
7	1	94	0.6464885044		
7	1	95	0.6456776808		
7	1	96	0.6427894602		
7	1	97	0.6394031665		
7	1	98	0.6371403693		
7	1	99	0.6351707549		
7	1	100	0.6328046273		
*	7	2	3	1.9999999999	2.0000000000 tight bound
	7	2	4	1.8888888888	1.9047619048
	7	2	5	1.7853996980	1.7857142858
*	7	2	6	1.7142857142	1.7142857143 tight bound [3]
*	7	2	7	1.6666666666	1.6666666667 tight bound [3]
*	7	2	8	1.6326530612	1.6326530613 tight bound [3]
*	7	2	9	1.6071428571	1.6071428572 tight bound [3]
*	7	2	10	1.5873015873	1.5873015874 tight bound [3]
*	7	2	11	1.5714285714	1.5714285715 tight bound [3]
*	7	2	12	1.5584415584	1.5584415585 tight bound [3]
*	7	2	13	1.5476190476	1.5476190477 tight bound [3]
*	7	2	14	1.5384615384	1.5384615385 tight bound [3]
*	7	2	15	1.5306122448	1.5306122449 tight bound [3]
*	7	2	16	1.5238095238	1.5238095239 tight bound [3]
*	7	2	17	1.5178571428	1.5178571429 tight bound [3]

7	2	18	1.5126049647	1.5126050421	unclear whether bound is tight
7	2	19	1.5078135777	1.5079365080	
7	2	20	1.5025651961	1.5037593985	
7	2	21	1.4986698794	1.5000000000	
7	2	22	1.4911646318	1.4965986395	
7	2	23	1.4858572869	1.4935064936	
7	2	24	1.4789664832	1.4906832299	
7	2	25	1.4724778886	1.4880952381	
7	2	26	1.4666498991	1.4857142858	
7	2	27	1.4606000326	1.4835164836	
7	2	28	1.4530805455	1.4814814815	
★	7	2	29	1.4285714285	1.4285714286
	7	2	30	1.4234168210	1.4285714286
	7	2	31	1.4167413920	1.4285714286
	7	2	32	1.4106172456	1.4285714286
	7	2	33	1.4038294444	1.4285714286
	7	2	34	1.3978005668	1.4285714286
	7	2	35	1.3915140837	1.4285714286
	7	2	36	1.3846616119	1.4285714286
	7	2	37	1.3787964945	1.4285714286
	7	2	38	1.3723186833	1.4285714286
	7	2	39	1.3666505200	1.4285714286
	7	2	40	1.3605996315	1.4285714286
	7	2	41	1.3574900911	1.4285714286
	7	2	42	1.3550346662	1.4285714286
	7	2	43	1.3449020718	1.4285714286
	7	2	44	1.3407058526	1.4285714286
	7	2	45	1.3356536494	1.4285714286
	7	2	46	1.3321216420	1.4285714286
	7	2	47	1.3267186601	1.4285714286
	7	2	48	1.3231954071	1.4285714286
	7	2	49	1.3209340300	1.4285714286
	7	2	50	1.3150008002	1.4285714286
	7	2	51	1.3111594033	1.4285714286
	7	2	52	1.3072463731	1.4285714286
	7	2	53	1.3039771601	1.4285714286
	7	2	54	1.3005373239	1.4285714286
	7	2	55	1.2977549116	
	7	2	56	1.2951504509	
	7	2	57	1.2908080891	
	7	2	58	1.2877363684	
	7	2	59	1.2848918218	
	7	2	60	1.2816993374	
	7	2	61	1.2787261110	
	7	2	62	1.2762435035	
	7	2	63	1.2741915056	
	7	2	64	1.2709640809	
	7	2	65	1.2686289333	
	7	2	66	1.2661430553	
	7	2	67	1.2639313864	
	7	2	68	1.2613220241	

7	2	69	1.2593780842		
7	2	70	1.2570428981		
7	2	71	1.2550353889		
7	2	72	1.2525900339		
7	2	73	1.2503852344		
7	2	74	1.2481794391		
7	2	75	1.2461449969		
7	2	76	1.2439461645		
7	2	77	1.2424395212		
7	2	78	1.2403264525		
7	2	79	1.2385057683		
7	2	80	1.2368075509		
7	2	81	1.2347641678		
7	2	82	1.2329815570		
7	2	83	1.2312377095		
7	2	84	1.2295558152		
7	2	85	1.2279243483		
7	2	86	1.2263595006		
7	2	87	1.2247949249		
7	2	88	1.2231005224		
7	2	89	1.2218114308		
7	2	90	1.2204226022		
7	2	91	1.2186197730		
7	2	92	1.2170420393		
7	2	93	1.2153674979		
7	2	94	1.2138172699		
7	2	95	1.2121348994		
7	2	96	1.2109491523		
7	2	97	1.2093494870		
7	2	98	1.2079309969		
7	2	99	1.2068681964		
7	2	100	1.2049910656		
7	3	3	2.4999999999	2.5714285715	
*	7	3	4	2.2857142857	2.2857142858 tight bound [3]
*	7	3	5	2.1428571428	2.1428571429 tight bound [3]
*	7	3	6	2.0571428571	2.0571428572 tight bound [3]
*	7	3	7	1.9999999999	2.0000000000 tight bound [3]
*	7	3	8	1.9591836734	1.9591836735 tight bound [3]
*	7	3	9	1.9285714285	1.9285714286 tight bound [3]
*	7	3	10	1.9047619047	1.9047619048 tight bound [3]
*	7	3	11	1.8857142857	1.8857142858 tight bound [3]
*	7	3	12	1.8701298701	1.8701298702 tight bound [3]
*	7	3	13	1.8571428571	1.8571428572 tight bound [3]
*	7	3	14	1.8461538461	1.8461538462 tight bound [3]
*	7	3	15	1.8367346938	1.8367346939 tight bound [3]
*	7	3	16	1.8285714285	1.8285714286 tight bound [3]
*	7	3	17	1.8214285714	1.8214285715 tight bound [3]
*	7	3	18	1.8151260504	1.8151260505 tight bound [3]
*	7	3	19	1.8095238095	1.8095238096 tight bound [3]
*	7	3	20	1.8045112781	1.8045112782 tight bound [3]
*	7	3	21	1.7999999999	1.8000000000 tight bound [3]

★	7	3	22	1.7959183673	1.7959183674	tight bound [3]
	7	3	23	1.7922077630	1.7922077923	unclear whether bound is tight
	7	3	24	1.7885259141	1.7888198758	
	7	3	25	1.7845144676	1.7857142858	
	7	3	26	1.7802988168	1.7828571429	
	7	3	27	1.7777777777	1.7802197803	
★	7	3	28	1.7777777777	1.7777777778	tight bound [4]
★	7	3	29	1.7142857142	1.7142857143	
★	7	3	30	1.7142857142	1.7142857143	
★	7	3	31	1.7142857142	1.7142857143	
	7	3	32	1.7123818065	1.7142857143	
	7	3	33	1.7090579490	1.7142857143	
	7	3	34	1.7045536491	1.7142857143	
	7	3	35	1.6993966165	1.7142857143	
	7	3	36	1.6940796385	1.7142857143	
	7	3	37	1.6853688082	1.7142857143	
	7	3	38	1.6782858851	1.7142857143	
	7	3	39	1.6724829492	1.7142857143	
	7	3	40	1.6671276045	1.7142857143	
	7	3	41	1.6622964593	1.7142857143	
	7	3	42	1.6599721328	1.7142857143	
	7	3	43	1.6530488721	1.7142857143	
	7	3	44	1.6485675628	1.7142857143	
	7	3	45	1.6447847108	1.7142857143	
	7	3	46	1.6401963991	1.7142857143	
	7	3	47	1.6359455404	1.7142857143	
	7	3	48	1.6318722186	1.7142857143	
	7	3	49	1.6286298553	1.7142857143	
	7	3	50	1.6243991404	1.7142857143	
	7	3	51	1.6205530337	1.7142857143	
	7	3	52	1.6166859122	1.7142857143	
	7	3	53	1.6126345779	1.7142857143	
	7	3	54	1.6091095014	1.7142857143	
	7	3	55	1.6053922212		
	7	3	56	1.6018504077		
	7	3	57	1.5988670306		
	7	3	58	1.5951321828		
	7	3	59	1.5916167672		
	7	3	60	1.5891343332		
	7	3	61	1.5858780607		
	7	3	62	1.5822464688		
	7	3	63	1.5792334760		
	7	3	64	1.5766033063		
	7	3	65	1.5739901872		
	7	3	66	1.5704264419		
	7	3	67	1.5672619017		
	7	3	68	1.5643389046		
	7	3	69	1.5613224723		
	7	3	70	1.5584631552		
	7	3	71	1.5555870749		
	7	3	72	1.5524832564		

7	3	73	1.5493477805		
7	3	74	1.5464928374		
7	3	75	1.5445045976		
7	3	76	1.5410845074		
7	3	77	1.5393865819		
7	3	78	1.5358010907		
7	3	79	1.5327161199		
7	3	80	1.5302183992		
7	3	81	1.5277618493		
7	3	82	1.5251803048		
7	3	83	1.5225572939		
7	3	84	1.5199230998		
7	3	85	1.5176187665		
7	3	86	1.5157726523		
7	3	87	1.5132902028		
7	3	88	1.5112045823		
7	3	89	1.5088923199		
7	3	90	1.5067859785		
7	3	91	1.5043159181		
7	3	92	1.5026853705		
7	3	93	1.5003138772		
7	3	94	1.4985597338		
7	3	95	1.4965800606		
7	3	96	1.4947515620		
7	3	97	1.4926248315		
7	3	98	1.4907987931		
7	3	99	1.4891349922		
7	3	100	1.4870328370		
*	8	1 3	0.9999999999	1.0000000000	tight bound
*	8	1 4	0.9999999999	1.0000000000	tight bound
*	8	1 5	0.9999999999	1.0000000000	tight bound
*	8	1 6	0.9999999999	1.0000000000	tight bound
*	8	1 7	0.9999999999	1.0000000000	tight bound
*	8	1 8	0.9999999999	1.0000000000	tight bound
*	8	1 9	0.9843749999	0.9843750000	tight bound
	8	1 10	0.9666046313	0.9722222223	
	8	1 11	0.9558423333	0.9625000000	Henry Cohn [2]
	8	1 12	0.9463324958	0.9545454546	
	8	1 13	0.9428498176	0.9479166667	Henry Cohn [2]
	8	1 14	0.9333173024	0.9423076924	
	8	1 15	0.9271187957	0.9375000000	Henry Cohn [2]
	8	1 16	0.9249505911	0.9333333334	
	8	1 17	0.9158776325	0.9296875000	Henry Cohn
	8	1 18	0.9120270918	0.9264705883	
	8	1 19	0.9052829527	0.9236111112	
	8	1 20	0.9011030397	0.9210526316	
	8	1 21	0.8977591253	0.9187500000	
	8	1 22	0.8950594747	0.9166666667	
	8	1 23	0.8915431698	0.9147727273	
	8	1 24	0.8896986176	0.9130434783	
	8	1 25	0.8891101334	0.9114583334	

8	1	26	0.8890474906	0.9100000000	
8	1	27	0.8890027410	0.9086538462	
8	1	28	0.8889267660	0.9074074075	
8	1	29	0.8888889054	0.9062500000	
8	1	30	0.8888888888	0.9051724138	
8	1	31	0.8888888888	0.9041666667	
8	1	32	0.8888888888	0.9032258065	
8	1	33	0.8752898806	0.9023437500	
8	1	34	0.8735966279	0.9015151516	Henry Cohn
8	1	35	0.8724489795	0.9007352942	
8	1	36	0.8724489795	0.9000000000	
8	1	37	0.8570251735	0.8750000000	
8	1	38	0.8521130673	0.8750000000	
8	1	39	0.8490659200	0.8750000000	
8	1	40	0.8394838497	0.8750000000	
8	1	41	0.8336326419	0.8750000000	
8	1	42	0.8321803133	0.8750000000	
8	1	43	0.8252343909	0.8750000000	
8	1	44	0.8246210354	0.8750000000	
8	1	45	0.8180071575	0.8750000000	
8	1	46	0.8133111207	0.8750000000	
8	1	47	0.8099475483	0.8750000000	
8	1	48	0.8062414300	0.8750000000	
8	1	49	0.8006970070	0.8750000000	
8	1	50	0.7960451174	0.8750000000	
8	1	51	0.7915115898	0.8750000000	
8	1	52	0.7881049718	0.8750000000	
8	1	53	0.7874448256	0.8750000000	
8	1	54	0.7874448256	0.8750000000	
8	1	55	0.7782397178	0.8750000000	
8	1	56	0.7748346495	0.8750000000	
8	1	57	0.7726005037	0.8750000000	
8	1	58	0.7693598852	0.8750000000	
8	1	59	0.7665672737	0.8750000000	
8	1	60	0.7640649266	0.8750000000	
8	1	61	0.7614663919	0.8750000000	
8	1	62	0.7594322065	0.8750000000	
8	1	63	0.7572799338	0.8750000000	
8	1	64	0.7557164720	0.8750000000	
8	1	65	0.7542754622	0.8750000000	
8	1	66	0.7521498262	0.8750000000	
8	1	67	0.7509841150	0.8750000000	
8	1	68	0.7508437043	0.8750000000	
8	1	69	0.7505214729	0.8750000000	
8	1	70	0.7504163618	0.8750000000	
8	1	71	0.7504163618		
8	1	72	0.7501027399		
8	1	73	0.7500605860		
8	1	74	0.7500546207		
8	1	75	0.7500205088		
8	1	76	0.7500001960		

8	1	77	0.7499999999		
8	1	78	0.7499999999		
8	1	79	0.7499999999		
8	1	80	0.7499999999		
8	1	81	0.7499999999		
8	1	82	0.7499999999		
8	1	83	0.7499999999		
8	1	84	0.7499999999		
8	1	85	0.7499999999		
8	1	86	0.7499999999		
8	1	87	0.7499999999		
8	1	88	0.7499999999		
8	1	89	0.7499999999		
8	1	90	0.7499999999		
8	1	91	0.7499999999		
8	1	92	0.7499999999		
8	1	93	0.7499999999		
8	1	94	0.7499999999		
8	1	95	0.7499999999		
8	1	96	0.7499999999		
8	1	97	0.7499999999		
8	1	98	0.7499999999		
8	1	99	0.7499999999		
8	1	100	0.7499999999		
8	1	110	0.7499999999		
8	1	120	0.7499999999		
*	8	2	3	1.9999999999	2.0000000000 tight bound
*	8	2	4	1.9999999999	2.0000000000 tight bound [3]
*	8	2	5	1.8749999999	1.8750000000 tight bound [3]
*	8	2	6	1.7999999999	1.8000000000 tight bound [3]
*	8	2	7	1.7499999999	1.7500000000 tight bound [3]
*	8	2	8	1.7142857142	1.7142857143 tight bound [4]
*	8	2	9	1.6874999999	1.6875000000 tight bound [3]
*	8	2	10	1.6666666666	1.6666666667 tight bound [3]
*	8	2	11	1.6499999999	1.6500000000 tight bound [3]
*	8	2	12	1.6363636363	1.6363636364 tight bound [3]
*	8	2	13	1.6249999999	1.6250000000 tight bound [3]
*	8	2	14	1.6153846153	1.6153846154 tight bound [3]
*	8	2	15	1.6071428571	1.6071428572 tight bound [3]
*	8	2	16	1.5999999999	1.6000000000 tight bound [3]
*	8	2	17	1.5937499999	1.5937500000 tight bound [3]
*	8	2	18	1.5882352941	1.5882352942 tight bound [3]
*	8	2	19	1.5833333333	1.5833333334 tight bound [3]
*	8	2	20	1.5789473684	1.5789473685 tight bound [1]
*	8	2	21	1.5749999999	1.5750000000 tight bound [3]
	8	2	22	1.5714206524	1.5714285715
	8	2	23	1.5679718798	1.5681818182
	8	2	24	1.5638956526	1.5652173914
	8	2	25	1.5594411386	1.5625000000
	8	2	26	1.5556048492	1.5600000000
	8	2	27	1.5555555555	1.5576923077

* 8	2	28	1.5555555555	1.5555555556	tight bound [4]
8	2	29	1.5455014556	1.5535714286	
8	2	30	1.5397623054	1.5517241380	
8	2	31	1.5342474644	1.5500000000	
8	2	32	1.5304211816	1.5483870968	
8	2	33	1.5244179223	1.5468750000	
8	2	34	1.5216400745	1.5454545455	
8	2	35	1.5157682671	1.5441176471	
8	2	36	1.5096992398	1.5428571429	
* 8	2	37	1.4999999999	1.5000000000	tight bound [1]
* 8	2	38	1.4999999999	1.5000000000	tight bound [1]
* 8	2	39	1.4999999999	1.5000000000	tight bound [1]
* 8	2	40	1.4999999999	1.5000000000	tight bound [1]
* 8	2	41	1.4999999999	1.5000000000	
* 8	2	42	1.4999999999	1.5000000000	
* 8	2	43	1.4999999999	1.5000000000	
* 8	2	44	1.4999999999	1.5000000000	
8	2	45	1.4839496628	1.5000000000	
8	2	46	1.4820747225	1.5000000000	
8	2	47	1.4574747629	1.5000000000	
8	2	48	1.4493472456	1.5000000000	
8	2	49	1.4430613703	1.5000000000	
8	2	50	1.4370120052	1.5000000000	
8	2	51	1.4295527808	1.5000000000	
8	2	52	1.4250488712	1.5000000000	
8	2	53	1.4205582396	1.5000000000	
8	2	54	1.4169261433	1.5000000000	
8	2	55	1.4139410635	1.5000000000	
8	2	56	1.4103001046	1.5000000000	
8	2	57	1.4067766082	1.5000000000	
8	2	58	1.4035135119	1.5000000000	
8	2	59	1.4005185580	1.5000000000	
8	2	60	1.3970521508	1.5000000000	
8	2	61	1.3938797321	1.5000000000	
8	2	62	1.3917492871	1.5000000000	
8	2	63	1.3902410899	1.5000000000	
8	2	64	1.3855696923	1.5000000000	
8	2	65	1.3830155332	1.5000000000	
8	2	66	1.3798282875	1.5000000000	
8	2	67	1.3780390030	1.5000000000	
8	2	68	1.3747839937	1.5000000000	
8	2	69	1.3720023674	1.5000000000	
8	2	70	1.3700365322	1.5000000000	
8	2	71	1.3669202189		
8	2	72	1.3648267211		
8	2	73	1.3623325496		
8	2	74	1.3601012069		
8	2	75	1.3580251593		
8	2	76	1.3555540286		
8	2	77	1.3530842002		
8	2	78	1.3510414503		

8	2	79	1.3491322329		
8	2	80	1.3471137141		
8	2	81	1.3449341769		
8	2	82	1.3428427590		
8	2	83	1.3410774953		
8	2	84	1.3390354010		
8	2	85	1.3372699138		
8	2	86	1.3353916412		
8	2	87	1.3334073764		
8	2	88	1.3317243306		
8	2	89	1.3298350519		
8	2	90	1.3282466826		
8	2	91	1.3265256855		
8	2	92	1.3246678207		
8	2	93	1.3229906401		
8	2	94	1.3214178545		
8	2	95	1.3198705486		
8	2	96	1.3182364199		
8	2	97	1.3167432522		
8	2	98	1.3150944772		
8	2	99	1.3135775953		
8	2	100	1.3123160347		
8	3	3	2.7499999999	2.8125000000	
*	8	3	4	2.4999999999	2.5000000000 tight bound [3]
*	8	3	5	2.3437499999	2.3437500000 tight bound [3]
*	8	3	6	2.2499999999	2.2500000000 tight bound [3]
*	8	3	7	2.1874999999	2.1875000000 tight bound [3]
*	8	3	8	2.1428571428	2.1428571429 tight bound [3]
*	8	3	9	2.1093749999	2.1093750000 tight bound [3]
*	8	3	10	2.0833333333	2.0833333334 tight bound [3]
*	8	3	11	2.0624999999	2.0625000000 tight bound [3]
*	8	3	12	2.0454545454	2.0454545455 tight bound [3]
*	8	3	13	2.0312499999	2.0312500000 tight bound [3]
*	8	3	14	2.0192307692	2.0192307693 tight bound [3]
*	8	3	15	2.0089285714	2.0089285715 tight bound [3]
*	8	3	16	1.9999999999	2.0000000000 tight bound [3]
*	8	3	17	1.9921874999	1.9921875000 tight bound [3]
*	8	3	18	1.9852941176	1.9852941177 tight bound [3]
*	8	3	19	1.9791666666	1.9791666667 tight bound [3]
*	8	3	20	1.9736842105	1.9736842106 tight bound [3]
*	8	3	21	1.9687499999	1.9687500000 tight bound [3]
*	8	3	22	1.9642857142	1.9642857143 tight bound [3]
*	8	3	23	1.9602272727	1.9602272728 tight bound [3]
*	8	3	24	1.9565217391	1.9565217392 tight bound [3]
*	8	3	25	1.9531249999	1.9531250000 tight bound [3]
*	8	3	26	1.9499999999	1.9500000000 tight bound [3]
*	8	3	27	1.9471153846	1.9471153847 tight bound [3]
*	8	3	28	1.9444444444	1.9444444445 tight bound [3]
8	3	29	1.9419607487	1.9419642858	
8	3	30	1.9393067306	1.9396551725	
8	3	31	1.9364104091	1.9375000000	

8	3	32	1.9331940793	1.9354838710
8	3	33	1.9302953436	1.9335937500
8	3	34	1.9269015115	1.9318181819
8	3	35	1.9242740105	1.9301470589
8	3	36	1.9215462348	1.9285714286
* 8	3	37	1.8749999999	1.8750000000
* 8	3	38	1.8749999999	1.8750000000
* 8	3	39	1.8749999999	1.8750000000
8	3	40	1.8726311782	1.8750000000
8	3	41	1.8695466764	1.8750000000
8	3	42	1.8672191190	1.8750000000
8	3	43	1.8617025339	1.8750000000
8	3	44	1.8573529204	1.8750000000
8	3	45	1.8523703681	1.8750000000
8	3	46	1.8481658553	1.8750000000
8	3	47	1.8439643508	1.8750000000
8	3	48	1.8389582224	1.8750000000
8	3	49	1.8376213980	1.8750000000
8	3	50	1.8312093923	1.8750000000
8	3	51	1.8275803295	1.8750000000
8	3	52	1.8241292396	1.8750000000
8	3	53	1.8185356544	1.8750000000
8	3	54	1.8144700115	1.8750000000
8	3	55	1.8101807807	1.8750000000
8	3	56	1.8075235832	1.8750000000
8	3	57	1.8033602301	1.8750000000
8	3	58	1.8002016308	1.8750000000
8	3	59	1.7964451724	1.8750000000
8	3	60	1.7935832562	1.8750000000
8	3	61	1.7910813085	1.8750000000
8	3	62	1.7875667870	1.8750000000
8	3	63	1.7850015275	1.8750000000
8	3	64	1.7823409012	1.8750000000
8	3	65	1.7790680369	1.8750000000
8	3	66	1.7762541407	1.8750000000
8	3	67	1.7738706343	1.8750000000
8	3	68	1.7707761794	1.8750000000
8	3	69	1.7684878328	1.8750000000
8	3	70	1.7671559957	1.8750000000
8	3	71	1.7628283567	
8	3	72	1.7602025129	
8	3	73	1.7582301602	
8	3	74	1.7554788480	
8	3	75	1.7533820090	
8	3	76	1.7509328315	
8	3	77	1.7499651223	
8	3	78	1.7456354580	
8	3	79	1.7439917163	
8	3	80	1.7414874399	
8	3	81	1.7391374780	
8	3	82	1.7372080072	

8	3	83	1.7350507124		
8	3	84	1.7340896616		
8	3	85	1.7306136825		
8	3	86	1.7282004008		
8	3	87	1.7264150137		
8	3	88	1.7238915044		
8	3	89	1.7220491958		
8	3	90	1.7197432344		
8	3	91	1.7183757672		
8	3	92	1.7156619328		
8	3	93	1.7136166168		
8	3	94	1.7114385813		
8	3	95	1.7099987261		
8	3	96	1.7074738729		
8	3	97	1.7055539271		
8	3	98	1.7036747377		
8	3	99	1.7017539456		
8	3	100	1.6995717891		
*	8	4	7	2.3333333333	2.3333333334 tight bound [3]
*	8	4	8	2.2857142857	2.2857142858 tight bound [3]
*	8	4	9	2.2499999999	2.2500000000 tight bound [3]
*	8	4	10	2.2222222222	2.2222222223 tight bound [3]
*	8	4	12	2.1818181818	2.1818181819 tight bound [3]
*	8	4	14	2.1538461538	2.1538461539 tight bound [3]
*	8	4	15	2.1428571428	2.1428571429 tight bound [3]
*	8	4	16	2.1333333333	2.1333333334 tight bound [3]
*	8	4	17	2.1249999999	2.1250000000 tight bound [3]
*	8	4	18	2.1176470588	2.1176470589 tight bound [3]
*	8	4	21	2.0999999999	2.1000000000 tight bound [3]
*	8	4	22	2.0952380952	2.0952380953 tight bound [3]
*	8	4	24	2.0869565217	2.0869565218 tight bound [3]
*	8	4	25	2.0833333333	2.0833333334 tight bound [3]
*	8	4	26	2.0799999999	2.0800000000 tight bound [3]
*	8	4	28	2.0740740740	2.0740740741 tight bound [3]
*	8	4	29	2.0714285714	2.0714285715 tight bound [3]
*	8	4	30	2.0689655172	2.0689655173 tight bound [3]
	8	4	31	2.0666645769	2.0666666667
	8	4	32	2.0639741004	2.0645161291
	8	4	33	2.0608076723	2.0625000000
	8	4	34	2.0577850550	2.0606060607
	8	4	35	2.054845926	2.0588235295
	8	4	36	2.0537386119	2.0571428572
*	8	4	37	2.0000000000	2.0000000000 tight bound [4]
*	8	4	40	2.0000000000	2.0000000000 tight bound [4]
*	8	4	41	2.0000000000	2.0000000000 tight bound [4]
*	8	4	42	2.0000000000	2.0000000000 tight bound [4]
*	8	4	43	2.0000000000	2.0000000000 tight bound [4]
*	8	4	48	2.0000000000	2.0000000000 tight bound [4]
*	8	4	51	2.0000000000	2.0000000000 tight bound [4]
*	8	4	52	2.0000000000	2.0000000000 tight bound [4]
*	8	4	53	2.0000000000	2.0000000000 tight bound [4]

* 8	4	54	2.0000000000	2.0000000000	tight bound [4]
* 8	4	55	2.0000000000	2.0000000000	tight bound [4]
* 8	4	56	2.0000000000	2.0000000000	tight bound [4]
* 8	4	57	2.0000000000	2.0000000000	tight bound [4]
* 8	4	58	2.0000000000	2.0000000000	tight bound [4]
* 8	4	59	2.0000000000	2.0000000000	tight bound [4]
* 8	4	60	2.0000000000	2.0000000000	tight bound [4]
* 8	4	61	2.0000000000	2.0000000000	tight bound [4]
* 8	4	62	2.0000000000	2.0000000000	tight bound [4]
* 8	4	63	2.0000000000	2.0000000000	tight bound [4]
* 8	4	64	2.0000000000	2.0000000000	tight bound [4]
* 8	4	65	2.0000000000	2.0000000000	tight bound [4]
* 8	4	66	2.0000000000	2.0000000000	tight bound [4]
* 8	4	67	2.0000000000	2.0000000000	tight bound [4]
* 8	4	68	2.0000000000	2.0000000000	tight bound [4]
* 8	4	69	2.0000000000	2.0000000000	tight bound [4]
* 8	4	70	2.0000000000	2.0000000000	tight bound [4]
8	4	71	1.9433029277		
8	4	72	1.9400233117		
8	4	73	1.9170010845		
8	4	74	1.9129187037		
8	4	75	1.8989251363		
8	4	76	1.8946920214		
8	4	77	1.8859485889		
8	4	78	1.8814156932		
8	4	79	1.8750405183		
8	4	80	1.8709569658		
8	4	81	1.8662955667		
8	4	82	1.8625465870		
8	4	83	1.8589471846		
8	4	84	1.8569358472		
8	4	85	1.8527867380		
8	4	86	1.8499817093		
8	4	87	1.8472734989		
8	4	88	1.8443317622		
8	4	89	1.8417887120		
8	4	90	1.8396810530		
8	4	91	1.8395554785		
8	4	92	1.8351483298		
8	4	93	1.8334809404		
8	4	94	1.8310471183		
8	4	95	1.8297475483		
8	4	96	1.8275481590		
8	4	97	1.8258608290		
8	4	98	1.8241569036		
8	4	99	1.8219411153		
8	4	100	1.8195715222		
* 9	1	3	0.9999999999	1.0000000000	tight bound
* 9	1	4	0.9999999999	1.0000000000	tight bound
* 9	1	5	0.9999999999	1.0000000000	tight bound
* 9	1	6	0.9999999999	1.0000000000	tight bound

* 9	1	7	0.9999999999	1.0000000000	tight bound
* 9	1	8	0.9999999999	1.0000000000	tight bound
* 9	1	9	0.9999999999	1.0000000000	tight bound
* 9	1	10	0.9876543209	0.9876543210	tight bound
9	1	11	0.9734393342	0.9777777778	
9	1	12	0.9666046313	0.9696969697	
9	1	13	0.9563707159	0.9629629630	Henry Cohn [2]
9	1	14	0.9512036178	0.9572649573	
9	1	15	0.9455684462	0.9523809524	Henry Cohn [2]
9	1	16	0.9411764705	0.9481481482	
9	1	17	0.9411764705	0.9444444445	
* 9	1	18	0.9411764705	0.9411764706	tight bound
9	1	19	0.9282032302	0.9382716050	
9	1	20	0.9261177246	0.9356725147	
9	1	21	0.9217122601	0.9333333334	
9	1	22	0.9163582686	0.9312169313	
9	1	23	0.9120511821	0.9292929293	
9	1	24	0.9111188873	0.9275362319	
9	1	25	0.9076889007	0.9259259260	
9	1	26	0.9063093173	0.9244444445	
9	1	27	0.9010439365	0.9230769231	
9	1	28	0.9001504304	0.9218106996	
9	1	29	0.8995011921	0.9206349207	
9	1	30	0.8995011921	0.9195402299	
9	1	31	0.8923969366	0.9185185186	
9	1	32	0.8912356889	0.9175627241	
9	1	33	0.8906951522	0.9166666667	
9	1	34	0.8902282140	0.9158249159	
9	1	35	0.8900377149	0.9150326798	
9	1	36	0.8895204054	0.9142857143	
9	1	37	0.8893346619	0.9135802470	
9	1	38	0.8891995945	0.9129129130	
9	1	39	0.8891005773	0.9122807018	Henry Cohn
9	1	40	0.8888888888	0.9116809117	
9	1	41	0.8888888888	0.9111111112	
9	1	42	0.8888888888	0.9105691057	
9	1	43	0.8888888888	0.9100529101	
9	1	44	0.8888888888	0.9095607236	
9	1	45	0.8888888888	0.9090909091	
* 9	1	46	0.8888888888	0.8888888889	tight bound
* 9	1	47	0.8888888888	0.8888888889	tight bound
* 9	1	48	0.8888888888	0.8888888889	tight bound
9	1	49	0.8602734446	0.8888888889	
9	1	50	0.8565348340	0.8888888889	
9	1	51	0.8474254505	0.8888888889	
9	1	52	0.8448475070	0.8888888889	
9	1	53	0.8414466076	0.8888888889	
9	1	54	0.8389983203	0.8888888889	
9	1	55	0.8339800666	0.8888888889	
9	1	56	0.8299649402	0.8888888889	
9	1	57	0.8265301532	0.8888888889	

9	1	58	0.8245101220	0.8888888889	
9	1	59	0.8211964302	0.8888888889	
9	1	60	0.8188657535	0.8888888889	
9	1	61	0.8156219469	0.8888888889	
9	1	62	0.8131485938	0.8888888889	
9	1	63	0.8101339005	0.8888888889	
9	1	64	0.8077509620	0.8888888889	
9	1	65	0.8049939458	0.8888888889	
9	1	66	0.8020688238	0.8888888889	
9	1	67	0.7996575222	0.8888888889	
9	1	68	0.7971631370	0.8888888889	
9	1	69	0.7942599128	0.8888888889	
9	1	70	0.7923016940	0.8888888889	
9	1	71	0.7897734473	0.8888888889	
9	1	72	0.7876276159	0.8888888889	
9	1	73	0.7852787663	0.8888888889	
9	1	74	0.7831714927	0.8888888889	
9	1	75	0.7811886697	0.8888888889	
9	1	76	0.7793323357	0.8888888889	
9	1	77	0.7769543627	0.8888888889	
9	1	78	0.7752313552	0.8888888889	
9	1	79	0.7734929304	0.8888888889	
9	1	80	0.7718407051	0.8888888889	
9	1	81	0.7702618281	0.8888888889	
9	1	82	0.7683614943	0.8888888889	
9	1	83	0.7668828817	0.8888888889	
9	1	84	0.7650876664	0.8888888889	
9	1	85	0.7633192720	0.8888888889	
9	1	86	0.7625818132	0.8888888889	
9	1	87	0.7607612858	0.8888888889	
9	1	88	0.7590444251	0.8888888889	
9	1	89	0.7578723853		
9	1	90	0.7561756538		
9	1	91	0.7553129850		
9	1	92	0.7540368321		
9	1	93	0.7532285242		
9	1	94	0.7511539729		
9	1	95	0.7510180315		
9	1	96	0.7507511058		
9	1	97	0.7503713808		
9	1	98	0.7503713808		
9	1	99	0.7503713808		
9	1	100	0.7503713808		
*	9	2	3	1.9999999999	2.0000000000 tight bound
*	9	2	4	1.9999999999	2.0000000000 tight bound
	9	2	5	1.9374999999	1.9444444445
*	9	2	6	1.8666666666	1.8666666667
*	9	2	7	1.8148148148	1.8148148149
*	9	2	8	1.7777777777	1.7777777778
*	9	2	9	1.7499999999	1.7500000000
*	9	2	10	1.7283950617	1.7283950618

* 9	2	11	1.7111111111	1.7111111112
* 9	2	12	1.6969696969	1.6969696970
* 9	2	13	1.6851851851	1.6851851852
* 9	2	14	1.6752136752	1.6752136753
* 9	2	15	1.6666666666	1.6666666667
* 9	2	16	1.6592592592	1.6592592593
* 9	2	17	1.6527777777	1.6527777778
* 9	2	18	1.6470588235	1.6470588236
* 9	2	19	1.6419753086	1.6419753087
* 9	2	20	1.6374269005	1.6374269006
* 9	2	21	1.6333333333	1.6333333334
* 9	2	22	1.6296296296	1.6296296297
* 9	2	23	1.6262626262	1.6262626263
* 9	2	24	1.6231884057	1.6231884058
9	2	25	1.6203699489	1.6203703704
9	2	26	1.6177255610	1.6177777778
9	2	27	1.6153819649	1.6153846154
9	2	28	1.6118366588	1.6131687243
9	2	29	1.6082669755	1.6111111112
9	2	30	1.6048835870	1.6091954023
9	2	31	1.6011163926	1.6074074075
9	2	32	1.5977899577	1.6057347671
9	2	33	1.5935274222	1.6041666667
9	2	34	1.5911040659	1.6026936027
9	2	35	1.5892944715	1.6013071896
9	2	36	1.5885376440	1.6000000000
9	2	37	1.5815973868	1.5987654321
9	2	38	1.5768416943	1.5975975976
9	2	39	1.5729713339	1.5964912281
9	2	40	1.5697254467	1.5954415955
9	2	41	1.5664722480	1.5944444445
9	2	42	1.5639384346	1.5934959350
9	2	43	1.5615970638	1.5925925926
9	2	44	1.5587900803	1.5917312662
9	2	45	1.5569956637	1.5909090910
9	2	46	1.5484749960	1.5555555556
9	2	47	1.5412989077	1.5555555556
9	2	48	1.5353118322	1.5555555556
9	2	49	1.5304977746	1.5555555556
9	2	50	1.5258308162	1.5555555556
9	2	51	1.5206497331	1.5555555556
9	2	52	1.5164710013	1.5555555556
9	2	53	1.5131295727	1.5555555556
9	2	54	1.5105181411	1.5555555556
9	2	55	1.5067144215	1.5555555556
9	2	56	1.5037005939	1.5555555556
9	2	57	1.4999780657	1.5555555556
9	2	58	1.4968868489	1.5555555556
9	2	59	1.4936256041	1.5555555556
9	2	60	1.4909153761	1.5555555556
9	2	61	1.4875648570	1.5555555556

9	2	62	1.4850871226	1.5555555556	
9	2	63	1.4821140690	1.5555555556	
9	2	64	1.4792446925	1.5555555556	
9	2	65	1.4766507050	1.5555555556	
9	2	66	1.4740711478	1.5555555556	
9	2	67	1.4716929417	1.5555555556	
9	2	68	1.4685202501	1.5555555556	
9	2	69	1.4659600414	1.5555555556	
9	2	70	1.4637968014	1.5555555556	
9	2	71	1.4611697031	1.5555555556	
9	2	72	1.4600879581	1.5555555556	
9	2	73	1.4566522535	1.5555555556	
9	2	74	1.4542258648	1.5555555556	
9	2	75	1.4521441992	1.5555555556	
9	2	76	1.4496867965	1.5555555556	
9	2	77	1.4474868301	1.5555555556	
9	2	78	1.4456031808	1.5555555556	
9	2	79	1.4435490050	1.5555555556	
9	2	80	1.4414773944	1.5555555556	
9	2	81	1.4390785389	1.5555555556	
9	2	82	1.4373773045	1.5555555556	
9	2	83	1.4353263127	1.5555555556	
9	2	84	1.4333863684	1.5555555556	
9	2	85	1.4312604068	1.5555555556	
9	2	86	1.4291855679	1.5555555556	
9	2	87	1.4274275860	1.5555555556	
9	2	88	1.4257349588	1.5555555556	
9	2	89	1.4238650794		
9	2	90	1.4220800143		
9	2	91	1.4203214018		
9	2	92	1.4187042418		
9	2	93	1.4166937540		
9	2	94	1.4151096472		
9	2	95	1.4133764335		
9	2	96	1.4117408691		
9	2	97	1.4101931504		
9	2	98	1.4084149672		
9	2	99	1.4072462533		
9	2	100	1.4051137347		
*	9	3	3	2.9999999999	3.0000000000 tight bound
*	9	3	4	2.6666666666	2.6666666667
*	9	3	5	2.4999999999	2.5000000000
*	9	3	6	2.3999999999	2.4000000000
*	9	3	7	2.3333333333	2.3333333334
*	9	3	8	2.2857142857	2.2857142858
*	9	3	9	2.2499999999	2.2500000000
*	9	3	10	2.2222222222	2.2222222223
*	9	3	11	2.1999999999	2.2000000000
*	9	3	12	2.1818181818	2.1818181819
*	9	3	13	2.1666666666	2.1666666667
*	9	3	14	2.1538461538	2.1538461539

* 9 3 15	2.1428571428	2.1428571429
* 9 3 16	2.1333333333	2.1333333334
* 9 3 17	2.1249999999	2.1250000000
* 9 3 18	2.1176470588	2.1176470589
* 9 3 19	2.1111111111	2.1111111112
* 9 3 20	2.1052631578	2.1052631579
* 9 3 21	2.0999999999	2.1000000000
* 9 3 22	2.0952380952	2.0952380953
* 9 3 23	2.0909090909	2.0909090910
* 9 3 24	2.0869565217	2.0869565218
* 9 3 25	2.0833333333	2.0833333334
* 9 3 26	2.0799999999	2.0800000000
* 9 3 27	2.0769230769	2.0769230770
* 9 3 28	2.0740740740	2.0740740741
* 9 3 29	2.0714285714	2.0714285715
* 9 3 30	2.0689655172	2.0689655173
* 9 3 31	2.0666666666	2.0666666667
* 9 3 32	2.0645161290	2.0645161291
* 9 3 33	2.0624999999	2.0625000000
* 9 3 34	2.0606060606	2.0606060607
9 3 35	2.0587809882	2.0588235295
9 3 36	2.0570954026	2.0571428572
9 3 37	2.0544029639	2.0555555556
9 3 38	2.0519649279	2.0540540541
9 3 39	2.0494456271	2.0526315790
9 3 40	2.0469243110	2.0512820513
9 3 41	2.0442185819	2.0500000000
9 3 42	2.0418779229	2.0487804879
9 3 43	2.0387148191	2.0476190477
9 3 44	2.0360672335	2.0465116280
9 3 45	2.0338627125	2.0454545455
* 9 3 46	1.9999999999	2.0000000000
* 9 3 47	1.9999999999	2.0000000000
* 9 3 48	1.9999999999	2.0000000000
* 9 3 49	1.9999999999	2.0000000000
* 9 3 50	1.9999999999	2.0000000000
* 9 3 51	1.9999999999	2.0000000000
9 3 52	1.9984293284	2.0000000000
9 3 53	1.9950018974	2.0000000000
9 3 54	1.9931008689	2.0000000000
9 3 55	1.9898017394	2.0000000000
9 3 56	1.9873031741	2.0000000000
9 3 57	1.9836029246	2.0000000000
9 3 58	1.9817423720	2.0000000000
9 3 59	1.9785568766	2.0000000000
9 3 60	1.9762907171	2.0000000000
9 3 61	1.9738963208	2.0000000000
9 3 62	1.9725766269	2.0000000000
9 3 63	1.9695351554	2.0000000000
9 3 64	1.9678642523	2.0000000000
9 3 65	1.9654932026	2.0000000000

9	3	66	1.9642618203	2.0000000000
9	3	67	1.9489822954	2.0000000000
9	3	68	1.9424076979	2.0000000000
9	3	69	1.9351112904	2.0000000000
9	3	70	1.9309759442	2.0000000000
9	3	71	1.9275473036	2.0000000000
9	3	72	1.9240710698	2.0000000000
9	3	73	1.9208990561	2.0000000000
9	3	74	1.9180931895	2.0000000000
9	3	75	1.9150736484	2.0000000000
9	3	76	1.9125739602	2.0000000000
9	3	77	1.9107035475	2.0000000000
9	3	78	1.9081499003	2.0000000000
9	3	79	1.9062226986	2.0000000000
9	3	80	1.9041204990	2.0000000000
9	3	81	1.9015683663	2.0000000000
9	3	82	1.8996278885	2.0000000000
9	3	83	1.8977358798	2.0000000000
9	3	84	1.8951541982	2.0000000000
9	3	85	1.8930631321	2.0000000000
9	3	86	1.8910014140	2.0000000000
9	3	87	1.8894551350	2.0000000000
9	3	88	1.8880586219	2.0000000000
9	3	89	1.8853134879	
9	3	90	1.8835436182	
9	3	91	1.8817249589	
9	3	92	1.8795075903	
9	3	93	1.8776970877	
9	3	94	1.8758713477	
9	3	95	1.8745919667	
9	3	96	1.8726064384	
9	3	97	1.8709070056	
9	3	98	1.8686909611	
9	3	99	1.8667703641	
9	3	100	1.8654002384	
9	4	45	2.2702890237	2.2727272728
*	9	4	46	2.2222222222 2.2222222223
*	9	4	49	2.2222222222 2.2222222223
9	4	50	2.2199000776	2.2222222223
9	4	51	2.2191449223	2.2222222223
9	4	52	2.2165873022	2.2222222223
9	4	53	2.2149833364	2.2222222223
9	4	54	2.2112042717	2.2222222223
9	4	55	2.2093119084	2.2222222223
9	4	56	2.2053172071	2.2222222223
9	4	57	2.2024293207	2.2222222223
9	4	58	2.1979713031	2.2222222223
9	4	59	2.1951384177	2.2222222223
9	4	60	2.1904527705	2.2222222223
9	4	61	2.1871421708	2.2222222223
9	4	62	2.1834062961	2.2222222223

9	4	63	2.1805350811	2.222222223		
9	4	64	2.1774821057	2.222222223		
9	4	65	2.1749841002	2.222222223		
9	4	66	2.1724998803	2.222222223		
9	4	67	2.1696099947	2.222222223		
9	4	68	2.1666547763	2.222222223		
9	4	69	2.1644442256	2.222222223		
9	4	70	2.1619476026	2.222222223		
9	4	71	2.1592223048	2.222222223		
9	4	72	2.1563486436	2.222222223		
9	4	73	2.1539972410	2.222222223		
9	4	74	2.1512151042	2.222222223		
9	4	75	2.1489487984	2.222222223		
9	4	76	2.1464362472	2.222222223		
9	4	77	2.1441764769	2.222222223		
9	4	78	2.1416475895	2.222222223		
9	4	79	2.1393028788	2.222222223		
9	4	80	2.1369777169	2.222222223		
9	4	81	2.1344900175	2.222222223		
9	4	82	2.1325548006	2.222222223		
9	4	83	2.1297210469	2.222222223		
9	4	84	2.1271362623	2.222222223		
9	4	85	2.1247697592	2.222222223		
9	4	86	2.1226572034	2.222222223		
9	4	87	2.1198837716	2.222222223		
9	4	88	2.1173084588	2.222222223		
9	4	89	2.1150636700			
9	4	90	2.1126150409			
9	4	91	2.1104506860			
9	4	92	2.1082430404			
9	4	93	2.1056386736			
9	4	94	2.1032219634			
9	4	95	2.1005255671			
9	4	96	2.0986926180			
9	4	97	2.0966694728			
9	4	98	2.0941543367			
9	4	99	2.0916262173			
9	4	100	2.0900965624			
*	10	1	3	0.9999999999	1.0000000000	tight bound
*	10	1	4	0.9999999999	1.0000000000	tight bound
*	10	1	5	0.9999999999	1.0000000000	tight bound
*	10	1	6	0.9999999999	1.0000000000	tight bound
*	10	1	7	0.9999999999	1.0000000000	tight bound
*	10	1	8	0.9999999999	1.0000000000	tight bound
*	10	1	9	0.9999999999	1.0000000000	tight bound
*	10	1	10	0.9999999999	1.0000000000	tight bound
*	10	1	11	0.9899999999	0.9900000000	tight bound
	10	1	12	0.9795918367	0.9818181819	
	10	1	13	0.9701610293	0.9750000000	
	10	1	14	0.9636927022	0.9692307693	Henry Cohn [2]
	10	1	15	0.9620836879	0.9642857143	

★	10	1	16	0.9599999999	0.9600000000	tight bound
	10	1	17	0.9507194976	0.9562500000	
	10	1	18	0.9498198614	0.9529411765	
	10	1	19	0.9444444444	0.9500000000	
	10	1	20	0.9444444444	0.9473684211	
	10	1	21	0.9359877906	0.9450000000	
	10	1	22	0.9347730595	0.9428571429	
	10	1	23	0.9313366914	0.9409090910	
	10	1	24	0.9310323332	0.9391304348	
	10	1	25	0.9300502194	0.9375000000	
	10	1	26	0.9295993579	0.9360000000	
	10	1	27	0.9240556232	0.9346153847	
	10	1	28	0.9193648605	0.9333333334	
	10	1	29	0.9172571846	0.9321428572	
	10	1	30	0.9128083024	0.9310344828	
	10	1	31	0.9113368360	0.9300000000	
	10	1	32	0.9109456444	0.9290322581	
	10	1	33	0.9093855330	0.9281250000	
	10	1	34	0.9093191976	0.9272727273	
	10	1	35	0.9092937388	0.9264705883	
	10	1	36	0.9053254437	0.9257142858	
	10	1	37	0.9053254437	0.9250000000	
	10	1	38	0.9053254437	0.9243243244	
	10	1	39	0.9053254437	0.9236842106	
	10	1	40	0.9053254437	0.9230769231	
	10	1	41	0.8957103867	0.9225000000	
	10	1	42	0.8939480942	0.9219512196	
	10	1	43	0.8927917143	0.9214285715	
	10	1	44	0.8920028016	0.9209302326	
	10	1	45	0.8913308223	0.9204545455	
	10	1	46	0.8908231943	0.9200000000	
	10	1	47	0.8904450865	0.9195652174	
	10	1	48	0.8899112497	0.9191489362	
	10	1	49	0.8897254046	0.9187500000	
	10	1	50	0.8892491841	0.9183673470	
	10	1	51	0.8888889116	0.9180000000	
	10	1	52	0.8888888891	0.9176470589	
	10	1	53	0.8888888888	0.9173076924	
	10	1	54	0.8888888888	0.9169811321	
	10	1	55	0.8828740780	0.9166666667	
	10	1	56	0.8791307488	0.9000000000	
	10	1	57	0.8759516737	0.9000000000	
	10	1	58	0.8734902536	0.9000000000	
	10	1	59	0.8671082052	0.9000000000	
	10	1	60	0.8656621045	0.9000000000	
	10	1	61	0.8648310393	0.9000000000	
	10	1	62	0.8615179785	0.9000000000	
	10	1	63	0.8615179785	0.9000000000	
	10	1	64	0.8615179785	0.9000000000	
	10	1	65	0.8615179785	0.9000000000	
	10	1	66	0.8518325826	0.9000000000	

10	1	67	0.8465264471	0.9000000000		
10	1	68	0.8439094495	0.9000000000		
10	1	69	0.8402881286	0.9000000000		
10	1	70	0.8377590617	0.9000000000		
10	1	71	0.8356809302	0.9000000000		
10	1	72	0.8333872517	0.9000000000		
10	1	73	0.8312368159	0.9000000000		
10	1	74	0.8291032400	0.9000000000		
10	1	75	0.8272035407	0.9000000000		
10	1	76	0.8252346390	0.9000000000		
10	1	77	0.8233137114	0.9000000000		
10	1	78	0.8212797061	0.9000000000		
10	1	79	0.8194446490	0.9000000000		
10	1	80	0.8174896636	0.9000000000		
10	1	81	0.8156633388	0.9000000000		
10	1	82	0.8140735185	0.9000000000		
10	1	83	0.8119735528	0.9000000000		
10	1	84	0.8101076725	0.9000000000		
10	1	85	0.8081885001	0.9000000000		
10	1	86	0.8068789347	0.9000000000		
10	1	87	0.8047338178	0.9000000000		
10	1	88	0.8031578077	0.9000000000		
10	1	89	0.8012902268	0.9000000000		
10	1	90	0.7996622387	0.9000000000		
10	1	91	0.7978732500	0.9000000000		
10	1	92	0.7962471644	0.9000000000		
10	1	93	0.7947808729	0.9000000000		
10	1	94	0.7932622387	0.9000000000		
10	1	95	0.7916865927	0.9000000000		
10	1	96	0.7902908007	0.9000000000		
10	1	97	0.7889776287	0.9000000000		
10	1	98	0.7873628662	0.9000000000		
10	1	99	0.7860156893	0.9000000000		
10	1	100	0.7846677264	0.9000000000		
*	10	2	3	1.9999999999	2.0000000000	tight bound
*	10	2	4	1.9999999999	2.0000000000	tight bound
*	10	2	5	1.9999999999	2.0000000000	tight bound
*	10	2	6	1.9199999999	1.9200000000	
*	10	2	7	1.8666666666	1.8666666667	
*	10	2	8	1.8285714285	1.8285714286	
*	10	2	9	1.7999999999	1.8000000000	
*	10	2	10	1.7777777777	1.7777777778	
*	10	2	11	1.7599999999	1.7600000000	
*	10	2	12	1.7454545454	1.7454545455	
*	10	2	13	1.7333333333	1.7333333334	
*	10	2	14	1.7230769230	1.7230769231	
*	10	2	15	1.7142857142	1.7142857143	
*	10	2	16	1.7066666666	1.7066666667	
*	10	2	17	1.6999999999	1.7000000000	
*	10	2	18	1.6941176470	1.6941176471	
*	10	2	19	1.6888888888	1.6888888889	

* 10	2	20	1.6842105263	1.6842105264	
* 10	2	21	1.6799999999	1.6800000000	
* 10	2	22	1.6761904761	1.6761904762	
* 10	2	23	1.6727272727	1.6727272728	
* 10	2	24	1.6695652173	1.6695652174	
* 10	2	25	1.6666666666	1.6666666667	
* 10	2	26	1.6639999999	1.6640000000	
* 10	2	27	1.6615384615	1.6615384616	
10	2	28	1.6592592579	1.6592592593	unclear whether bound is tight
10	2	29	1.6571340790	1.6571428572	
10	2	30	1.6551615886	1.6551724138	
10	2	31	1.6526911663	1.6533333334	
10	2	32	1.6501214922	1.6516129033	
10	2	33	1.6476071575	1.6500000000	
10	2	34	1.6448230004	1.6484848485	
10	2	35	1.6431402003	1.6470588236	
10	2	36	1.6414125736	1.6457142858	
10	2	37	1.6363604829	1.6444444445	
10	2	38	1.6333875451	1.6432432433	
10	2	39	1.6305059352	1.6421052632	
10	2	40	1.6289427497	1.6410256411	
10	2	41	1.6241829838	1.6400000000	
10	2	42	1.6213302069	1.6390243903	
10	2	43	1.6191937976	1.6380952381	
10	2	44	1.6174406044	1.6372093024	
10	2	45	1.6159735561	1.6363636364	
10	2	46	1.6102776613	1.6355555556	
10	2	47	1.6071783428	1.6347826087	
10	2	48	1.6047826798	1.6340425532	
10	2	49	1.6018680635	1.6333333334	
10	2	50	1.6003198832	1.6326530613	
10	2	51	1.5959904317	1.6320000000	
10	2	52	1.5928743586	1.6313725491	
10	2	53	1.5903424666	1.6307692308	
10	2	54	1.5878030706	1.6301886793	
10	2	55	1.5856621623	1.6296296297	
10	2	56	1.5808404314	1.6000000000	
10	2	57	1.5764429498	1.6000000000	
10	2	58	1.5729631504	1.6000000000	
10	2	59	1.5699537159	1.6000000000	
10	2	60	1.5663909396	1.6000000000	
10	2	61	1.5633862851	1.6000000000	
10	2	62	1.5600773709	1.6000000000	
10	2	63	1.5580723918	1.6000000000	
10	2	64	1.5548301659	1.6000000000	
10	2	65	1.5519937668	1.6000000000	
10	2	66	1.5491691665	1.6000000000	
10	2	67	1.5469978080	1.6000000000	
10	2	68	1.5438595566	1.6000000000	
10	2	69	1.5414622789	1.6000000000	
10	2	70	1.5396647731	1.6000000000	

10	2	71	1.5373218085	1.6000000000		
10	2	72	1.5346427051	1.6000000000		
10	2	73	1.5325277861	1.6000000000		
10	2	74	1.5301942990	1.6000000000		
10	2	75	1.5276355521	1.6000000000		
10	2	76	1.5256153515	1.6000000000		
10	2	77	1.5237073974	1.6000000000		
10	2	78	1.5220752312	1.6000000000		
10	2	79	1.5196367998	1.6000000000		
10	2	80	1.5174375676	1.6000000000		
10	2	81	1.5167871338	1.6000000000		
10	2	82	1.5133959708	1.6000000000		
10	2	83	1.5117589629	1.6000000000		
10	2	84	1.5098688401	1.6000000000		
10	2	85	1.5081412015	1.6000000000		
10	2	86	1.5062761226	1.6000000000		
10	2	87	1.5046556636	1.6000000000		
10	2	88	1.5027099984	1.6000000000		
10	2	89	1.5006668001	1.6000000000		
10	2	90	1.5001335752	1.6000000000		
10	2	91	1.4973830935	1.6000000000		
10	2	92	1.4958078219	1.6000000000		
10	2	93	1.4940103463	1.6000000000		
10	2	94	1.4929204887	1.6000000000		
10	2	95	1.4907527668	1.6000000000		
10	2	96	1.4894028815	1.6000000000		
10	2	97	1.4877643860	1.6000000000		
10	2	98	1.4865133046	1.6000000000		
10	2	99	1.4847365072	1.6000000000		
10	2	100	1.4829440759	1.6000000000		
*	10	3	3	2.9999999999	3.0000000000	tight bound
	10	3	4	2.7777777777	2.8000000000	
*	10	3	5	2.6249999999	2.6250000000	
*	10	3	6	2.5199999999	2.5200000000	
*	10	3	7	2.4499999999	2.4500000000	
*	10	3	8	2.3999999999	2.4000000000	
*	10	3	9	2.3624999999	2.3625000000	
*	10	3	10	2.3333333333	2.3333333334	
*	10	3	11	2.3099999999	2.3100000000	
*	10	3	12	2.2909090909	2.2909090910	
*	10	3	13	2.2749999999	2.2750000000	
*	10	3	14	2.2615384615	2.2615384616	
*	10	3	15	2.2499999999	2.2500000000	
*	10	3	16	2.2399999999	2.2400000000	
*	10	3	17	2.2312499999	2.2312500000	
*	10	3	18	2.2235294117	2.2235294118	
*	10	3	19	2.2166666666	2.2166666667	
*	10	3	20	2.2105263157	2.2105263158	
*	10	3	21	2.2049999999	2.2050000000	
*	10	3	22	2.1999999999	2.2000000000	
*	10	3	23	2.1954545454	2.1954545455	

* 10	3	24	2.1913043478	2.1913043479	
* 10	3	25	2.1874999999	2.1875000000	
* 10	3	26	2.1839999999	2.1840000000	
* 10	3	27	2.1807692307	2.1807692308	
* 10	3	28	2.1777777777	2.1777777778	
* 10	3	29	2.1749999999	2.1750000000	
* 10	3	30	2.1724137931	2.1724137932	
* 10	3	31	2.1699999999	2.1700000000	
* 10	3	32	2.1677419354	2.1677419355	
* 10	3	33	2.1656249999	2.1656250000	
* 10	3	34	2.1636363636	2.1636363637	
* 10	3	35	2.1617647058	2.1617647059	
* 10	3	36	2.1599999999	2.1600000000	
* 10	3	37	2.1583333333	2.1583333334	
* 10	3	38	2.1567567567	2.1567567568	
10	3	39	2.1552631573	2.1552631579	unclear whether bound is tight
10	3	40	2.1538461537	2.1538461539	unclear whether bound is tight
10	3	41	2.1524272729	2.1525000000	
10	3	42	2.1507755724	2.1512195122	
10	3	43	2.1489241529	2.1500000000	
10	3	44	2.1470167707	2.1488372094	
10	3	45	2.1460506167	2.1477272728	
10	3	46	2.1428403438	2.1466666667	
10	3	47	2.1408372390	2.1456521740	
10	3	48	2.1386853443	2.1446808511	
10	3	49	2.1363213718	2.1437500000	
10	3	50	2.1348742241	2.1428571429	
10	3	51	2.1317636534	2.1420000000	
10	3	52	2.1291440072	2.1411764706	
10	3	53	2.1270093716	2.1403846154	
10	3	54	2.1242330491	2.1396226416	
10	3	55	2.1225941432	2.1388888889	
* 10	3	56	2.0999999999	2.1000000000	
* 10	3	57	2.0999999999	2.1000000000	
10	3	58	2.0982220842	2.1000000000	
10	3	59	2.0941097874	2.1000000000	
10	3	60	2.0908591926	2.1000000000	
10	3	61	2.0886972821	2.1000000000	
10	3	62	2.0852593543	2.1000000000	
10	3	63	2.0820779459	2.1000000000	
10	3	64	2.0794150719	2.1000000000	
10	3	65	2.0764956398	2.1000000000	
10	3	66	2.0740027279	2.1000000000	
10	3	67	2.0711376926	2.1000000000	
10	3	68	2.0682239168	2.1000000000	
10	3	69	2.0652575463	2.1000000000	
10	3	70	2.0632777184	2.1000000000	
10	3	71	2.0602115192	2.1000000000	
10	3	72	2.0578406812	2.1000000000	
10	3	73	2.0551236021	2.1000000000	
10	3	74	2.0526479420	2.1000000000	

10	3	75	2.0504215288	2.1000000000	
10	3	76	2.0469296099	2.1000000000	
10	3	77	2.0453815945	2.1000000000	
10	3	78	2.0423625234	2.1000000000	
10	3	79	2.0399402443	2.1000000000	
10	3	80	2.0373373967	2.1000000000	
10	3	81	2.0347083977	2.1000000000	
10	3	82	2.0316126190	2.1000000000	
10	3	83	2.0298409303	2.1000000000	
10	3	84	2.0275202135	2.1000000000	
10	3	85	2.0247305984	2.1000000000	
10	3	86	2.0224463066	2.1000000000	
10	3	87	2.0204046434	2.1000000000	
10	3	88	2.0185419465	2.1000000000	
10	3	89	2.0160407702	2.1000000000	
10	3	90	2.0142004450	2.1000000000	
10	3	91	2.0123777727	2.1000000000	
10	3	92	2.0103730016	2.1000000000	
10	3	93	2.0090991605	2.1000000000	
10	3	94	2.0066559224	2.1000000000	
10	3	95	2.0049473405	2.1000000000	
10	3	96	2.0031172251	2.1000000000	
10	3	97	2.0014736136	2.1000000000	
10	3	98	1.9996120976	2.1000000000	
10	3	99	1.9979765465	2.1000000000	
10	3	100	1.9965698745	2.1000000000	
10	4	50	2.4474833415	2.4489795919	
10	4	51	2.4455409430	2.4480000000	
10	4	52	2.4437200830	2.4470588236	
10	4	53	2.4418267360	2.4461538462	
10	4	54	2.4400548844	2.4452830189	
10	4	55	2.4386745754	2.4444444445	
*	10	4	56	2.3999999999	2.4000000000
*	10	4	57	2.3999999999	2.4000000000
*	10	4	58	2.3999999999	2.4000000000
*	10	4	59	2.3999999999	2.4000000000
	10	4	60	2.3999564632	2.4000000000
	10	4	61	2.3983678036	2.4000000000
	10	4	62	2.3955678609	2.4000000000
	10	4	63	2.3940044014	2.4000000000
	10	4	64	2.3921986567	2.4000000000
	10	4	65	2.3894501083	2.4000000000
	10	4	66	2.3882249052	2.4000000000
	10	4	67	2.3847618862	2.4000000000
	10	4	68	2.3827128945	2.4000000000
	10	4	69	2.3800213146	2.4000000000
	10	4	70	2.3778961833	2.4000000000
	10	4	71	2.3749558053	2.4000000000
	10	4	72	2.3714853778	2.4000000000
	10	4	73	2.3679740550	2.4000000000
	10	4	74	2.3655093641	2.4000000000

10	4	75	2.3625990642	2.4000000000	
10	4	76	2.3593470356	2.4000000000	
10	4	77	2.3567286355	2.4000000000	
10	4	78	2.3544660101	2.4000000000	
10	4	79	2.3515429899	2.4000000000	
10	4	80	2.3486626331	2.4000000000	
10	4	81	2.3456776560	2.4000000000	
10	4	82	2.3433965344	2.4000000000	
10	4	83	2.3414269515	2.4000000000	
10	4	84	2.3394304631	2.4000000000	
10	4	85	2.3366452057	2.4000000000	
10	4	86	2.3344306791	2.4000000000	
10	4	87	2.3328021272	2.4000000000	
10	4	88	2.3301513719	2.4000000000	
10	4	89	2.3281777108	2.4000000000	
10	4	90	2.3265130702	2.4000000000	
10	4	91	2.3246401337	2.4000000000	
10	4	92	2.3224053543	2.4000000000	
10	4	93	2.3201125685	2.4000000000	
10	4	94	2.3180839911	2.4000000000	
10	4	95	2.3161610882	2.4000000000	
10	4	96	2.3141982186	2.4000000000	
10	4	97	2.3122017344	2.4000000000	
10	4	98	2.3106247789	2.4000000000	
10	4	99	2.3086381982	2.4000000000	
10	4	100	2.3063778165	2.4000000000	
10	5	50	2.5499773999	2.5510204082	
10	5	55	2.5433584078	2.5462962963	
10	5	56	2.4999999985	2.5000000000	unclear whether bound is tight
10	5	88	2.4999995807	2.5000000000	
*	11	1 3	0.9999999999	1.0000000000	tight bound
*	11	1 4	0.9999999999	1.0000000000	tight bound
*	11	1 5	0.9999999999	1.0000000000	tight bound
*	11	1 6	0.9999999999	1.0000000000	tight bound
*	11	1 7	0.9999999999	1.0000000000	tight bound
*	11	1 8	0.9999999999	1.0000000000	tight bound
*	11	1 9	0.9999999999	1.0000000000	tight bound
*	11	1 10	0.9999999999	1.0000000000	tight bound
*	11	1 11	0.9999999999	1.0000000000	tight bound
*	11	1 12	0.9917355371	0.9917355372	tight bound
	11	1 13	0.9817779155	0.9848484849	
	11	1 14	0.9751071940	0.9790209791	
	11	1 15	0.9696286013	0.9740259741	Henry Cohn [2]
	11	1 16	0.9681753716	0.9696969697	
	11	1 17	0.9630502549	0.9659090910	
	11	1 18	0.9599999999	0.9625668450	
	11	1 19	0.9543694836	0.9595959596	
	11	1 20	0.9537073602	0.9569377991	
	11	1 21	0.9485857426	0.9545454546	
	11	1 22	0.9466719366	0.9523809524	
	11	1 23	0.9442750635	0.9504132232	

11	1	24	0.9403933772	0.9486166008
11	1	25	0.9385214658	0.9469696970
11	1	26	0.9379801645	0.9454545455
11	1	27	0.9359029921	0.9440559441
11	1	28	0.9358635121	0.9427609428
11	1	29	0.9347102674	0.9415584416
11	1	30	0.9347102627	0.9404388715
11	1	31	0.9284382907	0.9393939394
11	1	32	0.9269380546	0.9384164223
11	1	33	0.9247073094	0.9375000000
11	1	34	0.9222976979	0.9366391185
11	1	35	0.9221735983	0.9358288771
11	1	36	0.9198014264	0.9350649351
11	1	37	0.9194019087	0.9343434344
11	1	38	0.9186539797	0.9336609337
11	1	39	0.9176810329	0.9330143541
11	1	40	0.9110455192	0.9324009325
11	1	41	0.9097354045	0.9318181819
11	1	42	0.9090956513	0.9312638581
11	1	43	0.9068810124	0.9307359308
11	1	44	0.9058991655	0.9302325582
11	1	45	0.9055625909	0.9297520662
11	1	46	0.9051931424	0.9292929293
11	1	47	0.9036398976	0.9288537550
11	1	48	0.9001471613	0.9284332689
11	1	49	0.8996628498	0.9280303031
11	1	50	0.8967206973	0.9276437848
11	1	51	0.8948849784	0.9272727273
11	1	52	0.8939471783	0.9269162211
11	1	53	0.8935096402	0.9265734266
11	1	54	0.8935096402	0.9262435678
11	1	55	0.8925573930	0.9259259260
11	1	56	0.8925573930	0.9256198348
11	1	57	0.8910705268	0.9253246754
11	1	58	0.8904693173	0.9250398725
11	1	59	0.8903312723	0.9247648903
11	1	60	0.8903312723	0.9244992296
11	1	61	0.8898548216	0.9242424243
11	1	62	0.8891150779	0.9239940388
11	1	63	0.8888901191	0.9237536657
11	1	64	0.8888901191	0.9235209236
11	1	65	0.8888888889	0.9232954546
11	1	66	0.8888888888	0.9230769231
11	1	67	0.8888888888	0.9090909091
11	1	68	0.8888888888	0.9090909091
11	1	69	0.8888888888	0.9090909091
11	1	70	0.8888888888	0.9090909091
11	1	71	0.8888888888	0.9090909091
11	1	72	0.8888888888	0.9090909091
11	1	73	0.8888888888	0.9090909091
11	1	74	0.8888888888	0.9090909091

11	1	75	0.8888888888	0.9090909091		
11	1	76	0.8888888888	0.9090909091	Henry Cohn, 2024	
11	1	77	0.8888888888	0.9090909091	Henry Cohn, 2024	
11	1	78	0.8888888888	0.9090909091	Henry Cohn, 2024	
11	1	79	0.8582817754	0.9090909091		
11	1	80	0.8565709088	0.9090909091		
11	1	81	0.8543163662	0.9090909091		
11	1	82	0.8519210475	0.9090909091		
11	1	83	0.8498322773	0.9090909091		
*	11	2	3	1.9999999999	2.0000000000	tight bound
*	11	2	4	1.9999999999	2.0000000000	tight bound
*	11	2	5	1.9999999999	2.0000000000	tight bound
	11	2	6	1.9599999999	1.9636363637	
	11	2	7	1.9088129953	1.9090909091	
*	11	2	8	1.8701298701	1.8701298702	
*	11	2	9	1.8409090909	1.8409090910	
*	11	2	10	1.8181818181	1.8181818182	
*	11	2	11	1.7999999999	1.8000000000	
*	11	2	12	1.7851239669	1.7851239670	
*	11	2	13	1.7727272727	1.7727272728	
*	11	2	14	1.7622377622	1.7622377623	
*	11	2	15	1.7532467532	1.7532467533	
*	11	2	16	1.7454545454	1.7454545455	
*	11	2	17	1.7386363636	1.7386363637	
*	11	2	18	1.7326203208	1.7326203209	
*	11	2	19	1.7272727272	1.7272727273	
*	11	2	20	1.7224880382	1.7224880383	
*	11	2	21	1.7181818181	1.7181818182	
*	11	2	22	1.7142857142	1.7142857143	
*	11	2	23	1.7107438016	1.7107438017	
*	11	2	24	1.7075098814	1.7075098815	
*	11	2	25	1.7045454545	1.7045454546	
*	11	2	26	1.7018181818	1.7018181819	
*	11	2	27	1.6993006993	1.6993006994	
*	11	2	28	1.6969696969	1.6969696970	
	11	2	29	1.6948051947	1.6948051949	unclear whether bound is tight
*	11	2	30	1.6927899686	1.6927899687	
*	11	2	31	1.6909090909	1.6909090910	
	11	2	32	1.6891487650	1.6891495602	
*	11	2	33	1.6874999999	1.6875000000	
	11	2	34	1.6858325432	1.6859504133	
	11	2	35	1.6838057950	1.6844919787	
	11	2	36	1.6817829421	1.6831168832	
	11	2	37	1.6797569476	1.6818181819	
	11	2	38	1.6775148672	1.6805896806	
	11	2	39	1.6754291358	1.6794258374	
	11	2	40	1.6732055209	1.6783216784	
	11	2	41	1.6712335869	1.6772727273	
	11	2	42	1.6697789330	1.6762749446	
	11	2	43	1.6690854752	1.6753246754	
	11	2	44	1.6687460213	1.6744186047	

11	2	45	1.6633045534	1.6735537191		
11	2	46	1.6597144818	1.6727272728		
11	2	47	1.6573638011	1.6719367589		
11	2	48	1.6547965201	1.6711798840		
11	2	49	1.6522381105	1.6704545455		
11	2	50	1.6497973528	1.6697588127		
11	2	51	1.6464106598	1.6690909091		
11	2	52	1.6440496081	1.6684491979		
11	2	53	1.6415284519	1.6678321679		
11	2	54	1.6399349232	1.6672384220		
11	2	55	1.6372372612	1.6666666667		
11	2	56	1.6351917426	1.6661157025		
11	2	57	1.6328214294	1.6655844156		
11	2	58	1.6303434705	1.6650717704		
11	2	59	1.6287342109	1.6645768026		
11	2	60	1.6268909063	1.6640986133		
11	2	61	1.6241506658	1.6636363637		
11	2	62	1.6221132930	1.6631892698		
11	2	63	1.6201042562	1.6627565983		
11	2	64	1.6180708728	1.6623376624		
11	2	65	1.6159959440	1.6619318182		
11	2	66	1.6147708645	1.6615384616		
11	2	67	1.6107995975	1.6363636364		
11	2	68	1.6080670059	1.6363636364		
11	2	69	1.6051351419	1.6363636364		
11	2	70	1.6028460665	1.6363636364		
11	2	71	1.5999397533	1.6363636364		
11	2	72	1.5977487210	1.6363636364		
11	2	73	1.5952224550	1.6363636364		
11	2	74	1.5930938107	1.6363636364		
11	2	75	1.5910000857	1.6363636364		
11	2	76	1.5885712523	1.6363636364		
11	2	77	1.5863668230	1.6363636364		
11	2	78	1.5844586223	1.6363636364		
11	2	79	1.5822642094	1.6363636364		
11	2	80	1.5800154935	1.6363636364		
11	2	81	1.5786058528	1.6363636364		
11	2	82	1.5764838293	1.6363636364		
11	2	83	1.5744559193	1.6363636364		
*	11	3	3	2.9999999999	3.0000000000	tight bound
	11	3	4	2.8888888888	2.9090909091	
*	11	3	5	2.7272727272	2.7272727273	
*	11	3	6	2.6181818181	2.6181818182	
*	11	3	7	2.5454545454	2.5454545455	
*	11	3	8	2.4935064935	2.4935064936	
*	11	3	9	2.4545454545	2.4545454546	
*	11	3	10	2.4242424242	2.4242424243	
*	11	3	11	2.3999999999	2.4000000000	
*	11	3	12	2.3801652892	2.3801652893	
*	11	3	13	2.3636363636	2.3636363637	
*	11	3	14	2.3496503496	2.3496503497	

* 11 3 15	2.3376623376	2.3376623377
* 11 3 16	2.3272727272	2.3272727273
* 11 3 17	2.3181818181	2.3181818182
* 11 3 18	2.3101604278	2.3101604279
* 11 3 19	2.3030303030	2.3030303031
* 11 3 20	2.2966507177	2.2966507178
* 11 3 21	2.2909090909	2.2909090910
* 11 3 22	2.2857142857	2.2857142858
* 11 3 23	2.2809917355	2.2809917356
* 11 3 24	2.2766798418	2.2766798419
* 11 3 25	2.2727272727	2.2727272728
* 11 3 26	2.2690909090	2.2690909091
* 11 3 27	2.2657342657	2.2657342658
* 11 3 28	2.2626262626	2.2626262627
* 11 3 29	2.2597402597	2.2597402598
* 11 3 30	2.2570532915	2.2570532916
* 11 3 31	2.2545454545	2.2545454546
* 11 3 32	2.2521994134	2.2521994135
* 11 3 33	2.2499999999	2.2500000000
* 11 3 34	2.2479338842	2.2479338843
* 11 3 35	2.2459893048	2.2459893049
* 11 3 36	2.2441558441	2.2441558442
* 11 3 37	2.2424242424	2.2424242425
* 11 3 38	2.2407862407	2.2407862408
* 11 3 39	2.2392344497	2.2392344498
* 11 3 40	2.2377622377	2.2377622378
* 11 3 41	2.2363636363	2.2363636364
* 11 3 42	2.2350332594	2.2350332595
* 11 3 43	2.2337662337	2.2337662338
* 11 3 44	2.2325581395	2.2325581396
* 11 3 45	2.2314049586	2.2314049587
11 3 46	2.2302986855	2.2303030304
11 3 47	2.2291085048	2.2292490119
11 3 48	2.2277692261	2.2282398453
11 3 49	2.2262599170	2.2272727273
11 3 50	2.2247217500	2.2263450835
11 3 51	2.2230842660	2.2254545455
11 3 52	2.2212218601	2.2245989305
11 3 53	2.2196062874	2.2237762238
11 3 54	2.2177727866	2.2229845627
11 3 55	2.2160562344	2.2222222223
11 3 56	2.2141803011	2.2214876034
11 3 57	2.2120800004	2.2207792208
11 3 58	2.2104652437	2.2200956938
11 3 59	2.2081263751	2.2194357367
11 3 60	2.2064567205	2.2187981511
11 3 61	2.2047061696	2.2181818182
11 3 62	2.2026570612	2.2175856930
11 3 63	2.2010545822	2.2170087977
11 3 64	2.1987523504	2.2164502165
11 3 65	2.1964480234	2.2159090910

11	3	66	2.1949295362	2.2153846154		
*	11	3	67	2.1818181818	2.1818181819	
	11	3	68	2.1796666088	2.1818181819	
	11	3	69	2.1760674306	2.1818181819	
	11	3	70	2.1724607962	2.1818181819	
	11	3	71	2.1696446288	2.1818181819	
	11	3	72	2.1670581856	2.1818181819	
	11	3	73	2.1648495967	2.1818181819	
	11	3	74	2.1621319488	2.1818181819	
	11	3	75	2.1596882951	2.1818181819	
	11	3	76	2.1573945567	2.1818181819	
	11	3	77	2.1549042856	2.1818181819	
	11	3	78	2.1526472816	2.1818181819	
	11	3	79	2.1504620672	2.1818181819	
	11	3	80	2.1482500235	2.1818181819	
	11	3	81	2.1463056966	2.1818181819	
	11	3	82	2.1437971644	2.1818181819	
	11	3	83	2.1399504595	2.1818181819	
*	11	4	51	2.5963636363	2.5963636364	
*	11	4	52	2.5953654188	2.5953654189	
*	11	4	53	2.5944055944	2.5944055945	
	11	4	54	2.5934819008	2.5934819898	unclear whether bound is tight
	11	4	55	2.5925311289	2.5925925926	
	11	4	56	2.5914017299	2.5917355372	
	11	4	57	2.5901288704	2.5909090910	
	11	4	58	2.5887385732	2.5901116428	
	11	4	59	2.5873967458	2.5893416928	
	11	4	60	2.5856899129	2.5885978429	
	11	4	61	2.5843916118	2.5878787879	
	11	4	62	2.5826971612	2.5871833085	
	11	4	63	2.5810854763	2.5865102640	
	11	4	64	2.5794344419	2.5858585859	
	11	4	65	2.5779064189	2.5852272728	
	11	4	66	2.5777278197	2.5846153847	
*	11	4	67	2.5454545454	2.5454545455	
*	11	4	68	2.5454545454	2.5454545455	
	11	4	69	2.5454545210	2.5454545455	unclear whether bound is tight
	11	4	70	2.5449868775	2.5454545455	
	11	4	71	2.5431609725	2.5454545455	
	11	4	72	2.5409135202	2.5454545455	
	11	4	73	2.5396456987	2.5454545455	
	11	4	74	2.5380739779	2.5454545455	
	11	4	75	2.5361576030	2.5454545455	
	11	4	76	2.5342233677	2.5454545455	
	11	4	77	2.5319750609	2.5454545455	
	11	4	78	2.5305438055	2.5454545455	
	11	4	79	2.5279959454	2.5454545455	
	11	4	80	2.5261479193	2.5454545455	
	11	4	81	2.5241759911	2.5454545455	
	11	4	82	2.5221360342	2.5454545455	
	11	5	66	2.7673627240	2.7692307693	

* 12	1	3	0.9999999999	1.0000000000	tight bound
* 12	1	4	0.9999999999	1.0000000000	tight bound
* 12	1	5	0.9999999999	1.0000000000	tight bound
* 12	1	6	0.9999999999	1.0000000000	tight bound
* 12	1	7	0.9999999999	1.0000000000	tight bound
* 12	1	8	0.9999999999	1.0000000000	tight bound
* 12	1	9	0.9999999999	1.0000000000	tight bound
* 12	1	10	0.9999999999	1.0000000000	tight bound
* 12	1	11	0.9999999999	1.0000000000	tight bound
* 12	1	12	0.9999999999	1.0000000000	tight bound
* 12	1	13	0.9930555555	0.9930555556	tight bound
12	1	14	0.9848824667	0.9871794872	Henry Cohn [2]
12	1	15	0.9786237766	0.9821428572	Henry Cohn [2]
12	1	16	0.9739713440	0.9777777778	
12	1	17	0.9707065575	0.9739583334	
12	1	18	0.9668782469	0.9705882353	
12	1	19	0.9643587037	0.9675925926	
12	1	20	0.9615491699	0.9649122808	
12	1	21	0.9600000003	0.9625000000	
12	1	22	0.9559245905	0.9603174604	
12	1	23	0.9544511501	0.9583333334	
12	1	24	0.9544511501	0.9565217392	
12	1	25	0.9499419489	0.9548611112	
12	1	26	0.9494803450	0.9533333334	
12	1	27	0.9442901955	0.9519230770	
12	1	28	0.9423065449	0.9506172840	
12	1	29	0.9397413841	0.9494047620	
12	1	30	0.9383628835	0.9482758621	
12	1	31	0.9375223617	0.9472222223	
12	1	32	0.9375000444	0.9462365592	
12	1	33	0.9374999999	0.9453125000	
12	1	34	0.9374999999	0.9444444445	
12	1	35	0.9374999999	0.9436274510	
12	1	36	0.9374999999	0.9428571429	
12	1	37	0.9374999999	0.9421296297	
12	1	38	0.9374999999	0.9414414415	
12	1	39	0.9374999999	0.9407894737	
12	1	40	0.9354081173	0.9401709402	
12	1	41	0.9285211720	0.9395833334	
12	1	42	0.9269265447	0.9390243903	
12	1	43	0.9246444674	0.9384920635	
12	1	44	0.9237062481	0.9379844962	
12	1	45	0.9236067977	0.9375000000	
12	1	46	0.9236067977	0.9370370371	
12	1	47	0.9236067977	0.9365942029	
12	1	48	0.9236067977	0.9361702128	
12	1	49	0.9177768416	0.9357638889	
12	1	50	0.9163210931	0.9353741497	
12	1	51	0.9059711300	0.9350000000	
12	1	52	0.9053953200	0.9346405229	
12	1	53	0.9045363823	0.9342948718	

12	1	54	0.9035623652	0.9339622642		
12	1	55	0.9026610548	0.9336419754		
12	1	56	0.9021025138	0.9333333334		
12	1	57	0.9010704788	0.9330357143		
12	1	58	0.9001388249	0.9327485381		
12	1	59	0.8994919322	0.9324712644		
12	1	60	0.8988369188	0.9322033899		
12	1	61	0.8982171518	0.9319444445		
12	1	62	0.8973238261	0.9316939891		
12	1	63	0.8967360791	0.9314516130		
12	1	64	0.8960446076	0.9312169313		
12	1	65	0.8955490203	0.9309895834		
12	1	66	0.8949176305	0.9307692308		
12	1	67	0.8940777222	0.9305555556		
12	1	68	0.8935613463	0.9303482588		
12	1	69	0.8931981598	0.9301470589		
12	1	70	0.8921872714	0.9299516909		
12	1	71	0.8921203940	0.9297619048		
12	1	72	0.8908989892	0.9295774648		
12	1	73	0.8904487563	0.9293981482		
12	1	74	0.8899354943	0.9292237443		
12	1	75	0.8889792736	0.9290540541		
12	1	76	0.8888888888	0.9288888889		
12	1	77	0.8888888888	0.9287280702		
12	1	78	0.8888888888	0.9285714286		
12	1	79	0.8856358863	0.9166666667		
12	1	80	0.8835601501	0.9166666667		
12	1	81	0.8829017669	0.9166666667		
12	1	82	0.8808871355	0.9166666667		
12	1	83	0.8793120150	0.9166666667		
12	1	84	0.8783024099	0.9166666667		
12	1	85	0.8770020029	0.9166666667		
12	1	86	0.8760424784	0.9166666667		
12	1	87	0.8745895765	0.9166666667		
12	1	88	0.8737428740	0.9166666667		
12	1	89	0.8721612459	0.9166666667		
12	1	90	0.8706332749	0.9166666667		
12	1	91	0.8698186584	0.9166666667		
12	1	92	0.8679406193	0.9166666667		
12	1	93	0.8665782618	0.9166666667		
12	1	94	0.8645273436	0.9166666667		
*	12	2	3	1.9999999999	2.0000000000	tight bound
*	12	2	4	1.9999999999	2.0000000000	tight bound
*	12	2	5	1.9999999999	2.0000000000	tight bound
*	12	2	6	1.9999999999	2.0000000000	tight bound
*	12	2	7	1.9444444444	1.9444444445	
*	12	2	8	1.9047619047	1.9047619048	
*	12	2	9	1.8749999999	1.8750000000	
*	12	2	10	1.8518518518	1.8518518519	
*	12	2	11	1.8333333333	1.8333333334	
*	12	2	12	1.8181818181	1.8181818182	

* 12	2	13	1.8055555555	1.8055555556	
* 12	2	14	1.7948717948	1.7948717949	
* 12	2	15	1.7857142857	1.7857142858	
* 12	2	16	1.7777777777	1.7777777778	
* 12	2	17	1.7708333333	1.7708333334	
* 12	2	18	1.7647058823	1.7647058824	
* 12	2	19	1.7592592592	1.7592592593	
* 12	2	20	1.7543859649	1.7543859650	
* 12	2	21	1.7499999999	1.7500000000	
* 12	2	22	1.7460317460	1.7460317461	
* 12	2	23	1.7424242424	1.7424242425	
* 12	2	24	1.7391304347	1.7391304348	
* 12	2	25	1.7361111111	1.7361111112	
* 12	2	26	1.7333333333	1.7333333334	
* 12	2	27	1.7307692307	1.7307692308	
* 12	2	28	1.7283950617	1.7283950618	
* 12	2	29	1.7261904761	1.7261904762	
* 12	2	30	1.7241379310	1.7241379311	
* 12	2	31	1.7222222222	1.7222222223	
* 12	2	32	1.7204301075	1.7204301076	
* 12	2	33	1.7187499999	1.7187500000	
* 12	2	34	1.7171717171	1.7171717172	
12	2	35	1.7156862561	1.7156862746	unclear whether bound is tight
12	2	36	1.7142849402	1.7142857143	
12	2	37	1.7128951027	1.7129629630	
12	2	38	1.7114069196	1.7117117118	
12	2	39	1.7097313772	1.7105263158	
12	2	40	1.7082076422	1.7094017095	
12	2	41	1.7063613416	1.7083333334	
12	2	42	1.7047172384	1.7073170732	
12	2	43	1.7028054036	1.7063492064	
12	2	44	1.7021113805	1.7054263566	
12	2	45	1.6991966011	1.7045454546	
12	2	46	1.6973569022	1.7037037038	
12	2	47	1.6959846782	1.7028985508	
12	2	48	1.6947391528	1.7021276596	
12	2	49	1.6917124881	1.7013888889	
12	2	50	1.6897650411	1.7006802722	
12	2	51	1.6869535406	1.7000000000	
12	2	52	1.6851645010	1.6993464053	
12	2	53	1.6834044889	1.6987179488	
12	2	54	1.6817342996	1.6981132076	
12	2	55	1.6795836466	1.6975308642	
12	2	56	1.6774158104	1.6969696970	
12	2	57	1.6755091521	1.6964285715	
12	2	58	1.6736951044	1.6959064328	
12	2	59	1.6718032518	1.6954022989	
12	2	60	1.6699434460	1.6949152543	
12	2	61	1.6680452399	1.6944444445	
12	2	62	1.6661656352	1.6939890711	
12	2	63	1.6643218767	1.6935483871	

12	2	64	1.6624683476	1.6931216932		
12	2	65	1.6605586720	1.6927083334		
12	2	66	1.6588301480	1.6923076924		
12	2	67	1.6572946971	1.6919191920		
12	2	68	1.6557462987	1.6915422886		
12	2	69	1.6535891863	1.6911764706		
12	2	70	1.6518437858	1.6908212561		
12	2	71	1.6500539606	1.6904761905		
12	2	72	1.6484294020	1.6901408451		
12	2	73	1.6469918405	1.6898148149		
12	2	74	1.6453091758	1.6894977169		
12	2	75	1.6433168718	1.6891891892		
12	2	76	1.6419559480	1.6888888889		
12	2	77	1.6399310857	1.6885964913		
12	2	78	1.6391193258	1.6883116884		
12	2	79	1.6366666436	1.6666666667		
12	2	80	1.6341673183	1.6666666667		
12	2	81	1.6320687903	1.6666666667		
12	2	82	1.6302840350	1.6666666667		
12	2	83	1.6281291984	1.6666666667		
12	2	84	1.6263703629	1.6666666667		
12	2	85	1.6242962710	1.6666666667		
12	2	86	1.6228039950	1.6666666667		
12	2	87	1.6208163027	1.6666666667		
12	2	88	1.6187735210	1.6666666667		
12	2	89	1.6171912596	1.6666666667		
12	2	90	1.6156475921	1.6666666667		
12	2	91	1.6138099617	1.6666666667		
12	2	92	1.6122743946	1.6666666667		
12	2	93	1.6104879900	1.6666666667		
12	2	94	1.6091370814	1.6666666667		
*	12	3	3	2.9999999999	3.0000000000	tight bound
*	12	3	4	2.9999999999	3.0000000000	tight bound
*	12	3	5	2.8124999999	2.8125000000	
*	12	3	6	2.6999999999	2.7000000000	
*	12	3	7	2.6249999999	2.6250000000	
*	12	3	8	2.5714285714	2.5714285715	
*	12	3	9	2.5312499999	2.5312500000	
*	12	3	10	2.4999999999	2.5000000000	
*	12	3	11	2.4749999999	2.4750000000	
*	12	3	12	2.4545454545	2.4545454546	
*	12	3	13	2.4374999999	2.4375000000	
*	12	3	14	2.4230769230	2.4230769231	
*	12	3	15	2.4107142857	2.4107142858	
*	12	3	16	2.3999999999	2.4000000000	
*	12	3	17	2.3906249999	2.3906250000	
*	12	3	18	2.3823529411	2.3823529412	
*	12	3	19	2.3749999999	2.3750000000	
*	12	3	20	2.3684210526	2.3684210527	
*	12	3	21	2.3624999999	2.3625000000	
*	12	3	22	2.3571428571	2.3571428572	

* 12 3 23	2.3522727272	2.3522727273
* 12 3 24	2.3478260869	2.3478260870
* 12 3 25	2.3437499999	2.3437500000
* 12 3 26	2.3399999999	2.3400000000
* 12 3 27	2.3365384615	2.3365384616
* 12 3 28	2.3333333333	2.3333333334
* 12 3 29	2.3303571428	2.3303571429
* 12 3 30	2.3275862068	2.3275862069
* 12 3 31	2.3249999999	2.3250000000
* 12 3 32	2.3225806451	2.3225806452
* 12 3 33	2.3203124999	2.3203125000
* 12 3 34	2.3181818181	2.3181818182
* 12 3 35	2.3161764705	2.3161764706
* 12 3 36	2.3142857142	2.3142857143
* 12 3 37	2.3124999999	2.3125000000
* 12 3 38	2.3108108108	2.3108108109
* 12 3 39	2.3092105263	2.3092105264
* 12 3 40	2.3076923076	2.3076923077
* 12 3 41	2.3062499999	2.3062500000
* 12 3 42	2.3048780487	2.3048780488
* 12 3 43	2.3035714285	2.3035714286
* 12 3 44	2.3023255813	2.3023255814
* 12 3 45	2.3011363636	2.3011363637
* 12 3 46	2.2999999999	2.3000000000
* 12 3 47	2.2989130434	2.2989130435
* 12 3 48	2.2978723404	2.2978723405
* 12 3 49	2.2968749999	2.2968750000
* 12 3 50	2.2959183673	2.2959183674
12 3 51	2.2949991496	2.2950000000
12 3 52	2.2940625934	2.2941176471
12 3 53	2.2929952316	2.2932692308
12 3 54	2.2917458017	2.2924528302
12 3 55	2.2905900848	2.2916666667
12 3 56	2.2893490359	2.2909090910
12 3 57	2.2879824291	2.2901785715
12 3 58	2.2865745896	2.2894736843
12 3 59	2.2852701943	2.2887931035
12 3 60	2.2837895210	2.2881355933
12 3 61	2.2821930183	2.2875000000
12 3 62	2.2807862765	2.2868852460
12 3 63	2.2792252242	2.2862903226
12 3 64	2.2779111398	2.2857142858
12 3 65	2.2762164378	2.2851562500
12 3 66	2.2745035234	2.2846153847
12 3 67	2.2728778938	2.2840909091
12 3 68	2.2713810499	2.2835820896
12 3 69	2.2696516590	2.2830882353
12 3 70	2.2684255439	2.2826086957
12 3 71	2.2665738629	2.2821428572
12 3 72	2.2647834950	2.2816901409
12 3 73	2.2633100923	2.2812500000

12	3	74	2.2617134461	2.2808219179		
12	3	75	2.2600573944	2.2804054055		
12	3	76	2.2581982518	2.2800000000		
12	3	77	2.2565024779	2.2796052632		
12	3	78	2.2548273749	2.2792207793		
12	3	79	2.2493061299	2.2500000000		
12	3	80	2.2440270228	2.2500000000		
12	3	81	2.2413810109	2.2500000000		
12	3	82	2.2381170918	2.2500000000		
12	3	83	2.2363252164	2.2500000000		
12	3	84	2.2327342283	2.2500000000		
12	3	85	2.2297930737	2.2500000000		
12	3	86	2.2273151274	2.2500000000		
12	3	87	2.2258962952	2.2500000000		
12	3	88	2.2243120636	2.2500000000		
12	3	89	2.2221158236	2.2500000000		
12	3	90	2.2199486582	2.2500000000		
12	3	91	2.2181139268	2.2500000000		
12	3	92	2.2161402375	2.2500000000		
12	3	93	2.2141106123	2.2500000000		
12	3	94	2.2120896590	2.2500000000		
*	12	4	50	2.7210884353	2.7210884354	
*	12	4	51	2.7199999999	2.7200000000	
*	12	4	52	2.7189542483	2.7189542484	
*	12	4	53	2.7179487179	2.7179487180	
*	12	4	54	2.7169811320	2.7169811321	
*	12	4	55	2.7160493827	2.7160493828	
*	12	4	56	2.7151515151	2.7151515152	
*	12	4	57	2.7142857142	2.7142857143	
*	12	4	58	2.7134502923	2.7134502924	
*	12	4	59	2.7126436781	2.7126436782	
*	12	4	60	2.7118644067	2.7118644068	
	12	4	61	2.7111111104	2.7111111112	unclear whether bound is tight
	12	4	62	2.7103812619	2.7103825137	
	12	4	63	2.7095949171	2.7096774194	
	12	4	64	2.7086459776	2.7089947090	
	12	4	65	2.7076697320	2.7083333334	
	12	4	66	2.7065884729	2.7076923077	
	12	4	67	2.7054060876	2.7070707071	
	12	4	68	2.7042085158	2.7064676617	
	12	4	69	2.7028355785	2.7058823530	
	12	4	70	2.7016879315	2.7053140097	
	12	4	71	2.7002482462	2.7047619048	
	12	4	72	2.6989605047	2.7042253522	
	12	4	73	2.6976082395	2.7037037038	
	12	4	74	2.6961342265	2.7031963471	
	12	4	75	2.6946416490	2.7027027028	
	12	4	76	2.6934515172	2.7022222223	
	12	4	77	2.6918100770	2.7017543860	
	12	4	78	2.6907870505	2.7012987013	
*	12	4	79	2.6666666666	2.6666666667	

* 12	4	80	2.6666666666	2.6666666667	
* 12	4	81	2.6666666666	2.6666666667	
* 12	4	82	2.6666666666	2.6666666667	
* 12	4	83	2.6666666666	2.6666666667	
* 12	4	84	2.6666666666	2.6666666667	
* 12	4	85	2.6666666666	2.6666666667	
* 12	4	86	2.6666666666	2.6666666667	
* 12	4	87	2.6666666666	2.6666666667	
* 12	4	88	2.6666666666	2.6666666667	
	12	4	89	2.6648739869	2.6666666667
	12	4	90	2.6636723791	2.6666666667
	12	4	91	2.6617069770	2.6666666667
	12	4	92	2.6595563998	2.6666666667
	12	4	93	2.6587892087	2.6666666667
	12	5	78	2.9504582094	2.9545454546
	12	6	78	3.0365665523	3.0389610390
* 13	1	3	0.9999999999	1.0000000000	tight bound
* 13	1	4	0.9999999999	1.0000000000	tight bound
* 13	1	5	0.9999999999	1.0000000000	tight bound
* 13	1	6	0.9999999999	1.0000000000	tight bound
* 13	1	7	0.9999999999	1.0000000000	tight bound
* 13	1	8	0.9999999999	1.0000000000	tight bound
* 13	1	9	0.9999999999	1.0000000000	tight bound
* 13	1	10	0.9999999999	1.0000000000	tight bound
* 13	1	11	0.9999999999	1.0000000000	tight bound
* 13	1	12	0.9999999999	1.0000000000	tight bound
* 13	1	13	0.9999999999	1.0000000000	tight bound
* 13	1	14	0.9940828402	0.9940828403	tight bound
	13	1	15	0.9876543209	0.9890109891
	13	1	16	0.9817758633	0.9846153847
	13	1	17	0.9772790822	0.9807692308
	13	1	18	0.9747366327	0.9773755657
	13	1	19	0.9723517424	0.9743589744
	13	1	20	0.9686827440	0.9716599191
	13	1	21	0.9670166565	0.9692307693
	13	1	22	0.9648781362	0.9670329671
	13	1	23	0.9611191288	0.9650349651
	13	1	24	0.9600000003	0.9632107024
	13	1	25	0.9599999999	0.9615384616
* 13	1	26	0.9599999999	0.9600000000	tight bound
	13	1	27	0.9524280428	0.9585798817
	13	1	28	0.9514324159	0.9572649573
	13	1	29	0.9488978074	0.9560439561
	13	1	30	0.9471598831	0.9549071619
	13	1	31	0.9462808850	0.9538461539
	13	1	32	0.9454397001	0.9528535981
	13	1	33	0.9432781078	0.9519230770
	13	1	34	0.9427576711	0.9510489511
	13	1	35	0.9420863940	0.9502262444
	13	1	36	0.9409959100	0.9494505495
	13	1	37	0.9396422902	0.9487179488

13	1	38	0.9381713027	0.9480249481		
13	1	39	0.9375576219	0.9473684211		
13	1	40	0.9375267895	0.9467455622		
13	1	41	0.9375034937	0.9461538462		
13	1	42	0.9375000035	0.9455909944		
13	1	43	0.9375000000	0.9450549451		
13	1	44	0.9375000000	0.9445438283		
13	1	45	0.9375000000	0.9440559441		
13	1	46	0.9375000000	0.9435897436		
13	1	47	0.9375000000	0.9431438128		
13	1	48	0.9375000000	0.9427168577		
13	1	49	0.9375000000	0.9423076924		
13	1	50	0.9375000000	0.9419152277		
13	1	51	0.9375000000	0.9415384616		
13	1	52	0.9375000000	0.9411764706		
13	1	53	0.9292976783	0.9408284024		
13	1	54	0.9222658555	0.9404934688		
13	1	91	0.8907672709	0.9333333334		
*	13	2	3	1.9999999999	2.0000000000	tight bound
*	13	2	4	1.9999999999	2.0000000000	tight bound
*	13	2	5	1.9999999999	2.0000000000	tight bound
*	13	2	6	1.9999999999	2.0000000000	tight bound
	13	2	7	1.9722222222	1.9743589744	
	13	2	8	1.9337352840	1.9340659341	
*	13	2	9	1.9038461538	1.9038461539	
*	13	2	10	1.8803418803	1.8803418804	
*	13	2	11	1.8615384615	1.8615384616	
*	13	2	12	1.8461538461	1.8461538462	
*	13	2	13	1.8333333333	1.8333333334	
*	13	2	14	1.8224852071	1.8224852072	
*	13	2	15	1.8131868131	1.8131868132	
*	13	2	16	1.8051282051	1.8051282052	
*	13	2	17	1.7980769230	1.7980769231	
*	13	2	18	1.7918552036	1.7918552037	
*	13	2	19	1.7863247863	1.7863247864	
*	13	2	20	1.7813765182	1.7813765183	
*	13	2	21	1.7769230769	1.7769230770	
*	13	2	22	1.7728937728	1.7728937729	
*	13	2	23	1.7692307692	1.7692307693	
*	13	2	24	1.7658862876	1.7658862877	
*	13	2	25	1.7628205128	1.7628205129	
*	13	2	26	1.7599999999	1.7600000000	
*	13	2	27	1.7573964497	1.7573964498	
*	13	2	28	1.7549857549	1.7549857550	
*	13	2	29	1.7527472527	1.7527472528	
*	13	2	30	1.7506631299	1.7506631300	
*	13	2	31	1.7487179487	1.7487179488	
*	13	2	32	1.7468982630	1.7468982631	
*	13	2	33	1.7451923076	1.7451923077	
*	13	2	34	1.7435897435	1.7435897436	
*	13	2	35	1.7420814479	1.7420814480	

* 13	2	36	1.7406593406	1.7406593407		
* 13	2	37	1.7393162393	1.7393162394		
* 13	2	38	1.7380457380	1.7380457381		
* 13	2	39	1.7368421052	1.7368421053		
	13	2	40	1.7356996512	1.7357001973	
	13	2	41	1.7344806530	1.7346153847	
	13	2	42	1.7332084018	1.7335834897	
	13	2	43	1.7318682917	1.7326007327	
	13	2	44	1.7304271306	1.7316636852	
	13	2	45	1.7290343294	1.7307692308	
	13	2	46	1.7276352001	1.7299145300	
	13	2	47	1.7261182645	1.7290969900	
	13	2	48	1.7252778365	1.7283142390	
	13	2	49	1.7231403771	1.7275641026	
	13	2	50	1.7217656705	1.7268445840	
	13	2	52	1.7161977524	1.7254901961	
	13	2	91	1.6596375077	1.7111111112	
* 13	3	3	2.9999999999	3.0000000000	tight bound	
* 13	3	4	2.9999999999	3.0000000000	tight bound	
	13	3	5	2.8749999999	2.8846153847	
	13	3	6	2.7692307690	2.7692307693	unclear whether bound is tight
* 13	3	7	2.6923076923	2.6923076924		
* 13	3	8	2.6373626373	2.6373626374		
* 13	3	9	2.5961538461	2.5961538462		
* 13	3	10	2.5641025641	2.5641025642		
* 13	3	11	2.5384615384	2.5384615385		
* 13	3	12	2.5174825174	2.5174825175		
* 13	3	13	2.4999999999	2.5000000000		
* 13	3	14	2.4852071005	2.4852071006		
* 13	3	15	2.4725274725	2.4725274726		
* 13	3	16	2.4615384615	2.4615384616		
* 13	3	17	2.4519230769	2.4519230770		
* 13	3	18	2.4434389140	2.4434389141		
* 13	3	19	2.4358974358	2.4358974359		
* 13	3	20	2.4291497975	2.4291497976		
* 13	3	21	2.4230769230	2.4230769231		
* 13	3	22	2.4175824175	2.4175824176		
* 13	3	23	2.4125874125	2.4125874126		
* 13	3	24	2.4080267558	2.4080267559		
* 13	3	25	2.4038461538	2.4038461539		
* 13	3	26	2.3999999999	2.4000000000		
* 13	3	27	2.3964497041	2.3964497042		
* 13	3	28	2.3931623931	2.3931623932		
* 13	3	29	2.3901098901	2.3901098902		
* 13	3	30	2.3872679045	2.3872679046		
* 13	3	31	2.3846153846	2.3846153847		
* 13	3	32	2.3821339950	2.3821339951		
* 13	3	33	2.3798076923	2.3798076924		
* 13	3	34	2.3776223776	2.3776223777		
* 13	3	35	2.3755656108	2.3755656109		
* 13	3	36	2.3736263736	2.3736263737		

* 13	3	37	2.3717948717	2.3717948718		
* 13	3	38	2.3700623700	2.3700623701		
* 13	3	39	2.3684210526	2.3684210527		
* 13	3	40	2.3668639053	2.3668639054		
* 13	3	41	2.3653846153	2.3653846154		
* 13	3	42	2.3639774859	2.3639774860		
* 13	3	43	2.3626373626	2.3626373627		
* 13	3	44	2.3613595706	2.3613595707		
* 13	3	45	2.3601398601	2.3601398602		
* 13	3	46	2.3589743589	2.3589743590		
* 13	3	47	2.3578595317	2.3578595318		
* 13	3	48	2.3567921440	2.3567921441		
* 13	3	49	2.3557692307	2.3557692308		
* 13	3	50	2.3547880690	2.3547880691		
* 13	3	52	2.3529411764	2.3529411765		
	13	3	65	2.3392699537	2.3437500000	
	13	3	91	2.3055384814	2.3333333334	
	13	4	91	2.7872406035	2.8000000000	
	13	5	91	3.1058033700	3.1111111112	
	13	5	92	3.0769111008	3.0769230770	
	13	6	91	3.2644910682	3.2666666667	
* 14	1	3	0.9999999999	1.0000000000	tight bound	
* 14	1	4	0.9999999999	1.0000000000	tight bound	
* 14	1	5	0.9999999999	1.0000000000	tight bound	
* 14	1	6	0.9999999999	1.0000000000	tight bound	
* 14	1	7	0.9999999999	1.0000000000	tight bound	
* 14	1	8	0.9999999999	1.0000000000	tight bound	
* 14	1	9	0.9999999999	1.0000000000	tight bound	
* 14	1	10	0.9999999999	1.0000000000	tight bound	
* 14	1	11	0.9999999999	1.0000000000	tight bound	
* 14	1	12	0.9999999999	1.0000000000	tight bound	
* 14	1	13	0.9999999999	1.0000000000	tight bound	
* 14	1	14	0.9999999999	1.0000000000	tight bound	
* 14	1	15	0.9948979591	0.9948979592	tight bound	
	14	1	16	0.9886719278	0.9904761905	
	14	1	17	0.9840783026	0.9866071429	Henry Cohn
	14	1	18	0.9802977940	0.9831932774	
	14	1	19	0.9771698572	0.9801587302	
	14	1	20	0.9752088818	0.9774436091	
	14	1	21	0.9720803634	0.9750000000	
	14	1	22	0.9699342690	0.9727891157	
	14	1	23	0.9682435319	0.9707792208	
	14	1	24	0.9666046313	0.9689440994	
	14	1	25	0.9637601090	0.9672619048	
	14	1	26	0.9616631350	0.9657142858	
	14	1	27	0.9604603098	0.9642857143	
	14	1	28	0.9600048857	0.9629629630	
	14	1	29	0.9562478183	0.9617346939	
	14	1	30	0.9544511974	0.9605911331	
	14	1	31	0.9528465119	0.9595238096	
	14	1	32	0.9514979988	0.9585253457	

14	1	33	0.9500981001	0.9575892858		
14	1	34	0.9484619067	0.9567099568		
14	1	35	0.9470784008	0.9558823530		
14	1	36	0.9456727029	0.9551020409		
14	1	37	0.9443325386	0.9543650794		
14	1	38	0.9430647308	0.9536679537		
14	1	39	0.9416954289	0.9530075188		
14	1	40	0.9406990949	0.9523809524		
14	1	41	0.9401715395	0.9517857143		
14	1	42	0.9394230569	0.9512195122		
14	1	43	0.9388846491	0.9506802722		
14	1	44	0.9382180956	0.9501661130		
14	1	45	0.9380007170	0.9496753247		
14	1	46	0.9379217961	0.9492063493		
14	1	47	0.9379061045	0.9487577640		
14	1	48	0.9377001984	0.9483282675		
14	1	49	0.9376866827	0.9479166667		
14	1	50	0.9376866827	0.9475218659		
14	1	51	0.9375262731	0.9471428572		
14	1	52	0.9374999999	0.9467787115		
14	1	53	0.9374999998	0.9464285715		
14	1	54	0.9374999998	0.9460916443		
14	1	55	0.9374876074	0.9457671958		
14	1	65	0.9198473151	0.9430803572		
*	14	2	3	1.9999999999	2.0000000000	tight bound
*	14	2	4	1.9999999999	2.0000000000	tight bound
*	14	2	5	1.9999999999	2.0000000000	tight bound
*	14	2	6	1.9999999999	2.0000000000	tight bound
*	14	2	7	1.9999999999	2.0000000000	tight bound
*	14	2	8	1.9591836734	1.9591836735	
	14	2	9	1.9285711819	1.9285714286	
*	14	2	10	1.9047619047	1.9047619048	
*	14	2	11	1.8857142857	1.8857142858	
*	14	2	12	1.8701298701	1.8701298702	
*	14	2	13	1.8571428571	1.8571428572	
*	14	2	14	1.8461538461	1.8461538462	
*	14	2	15	1.8367346938	1.8367346939	
*	14	2	16	1.8285714285	1.8285714286	
*	14	2	17	1.8214285714	1.8214285715	
*	14	2	18	1.8151260504	1.8151260505	
*	14	2	19	1.8095238095	1.8095238096	
*	14	2	20	1.8045112781	1.8045112782	
*	14	2	21	1.7999999999	1.8000000000	
*	14	2	22	1.7959183673	1.7959183674	
*	14	2	23	1.7922077922	1.7922077923	
*	14	2	24	1.7888198757	1.7888198758	
*	14	2	25	1.7857142857	1.7857142858	
*	14	2	26	1.7828571428	1.7828571429	
*	14	2	27	1.7802197802	1.7802197803	
*	14	2	28	1.7777777777	1.7777777778	
*	14	2	29	1.7755102040	1.7755102041	

* 14	2	30	1.7733990147	1.7733990148		
* 14	2	31	1.7714285714	1.7714285715		
* 14	2	32	1.7695852534	1.7695852535		
* 14	2	33	1.7678571428	1.7678571429		
* 14	2	34	1.7662337662	1.7662337663		
* 14	2	35	1.7647058823	1.7647058824		
* 14	2	36	1.7632653061	1.7632653062		
* 14	2	37	1.7619047619	1.7619047620		
* 14	2	38	1.7606177606	1.7606177607		
* 14	2	39	1.7593984962	1.7593984963		
* 14	2	40	1.7582417582	1.7582417583		
* 14	2	41	1.7571428571	1.7571428572		
* 14	2	42	1.7560975609	1.7560975610		
	14	2	43	1.7550911899	1.7551020409	
	14	2	44	1.7540989947	1.7541528240	
	14	2	45	1.7530591337	1.7532467533	
	14	2	46	1.7519293994	1.7523809524	
	14	2	47	1.7507975770	1.7515527951	
	14	2	48	1.7495978826	1.7507598785	
	14	2	49	1.7490705842	1.7500000000	
	14	2	50	1.7471917410	1.7492711371	
	14	2	56	1.7393235752	1.7454545455	
* 14	3	3	2.9999999999	3.0000000000	tight bound	
* 14	3	4	2.9999999999	3.0000000000	tight bound	
	14	3	5	2.9374999999	2.9464285715	
	14	3	6	2.8285412523	2.8285714286	
* 14	3	7	2.7499999999	2.7500000000		
* 14	3	8	2.6938775510	2.6938775511		
* 14	3	9	2.6517857142	2.6517857143		
* 14	3	10	2.6190476190	2.6190476191		
* 14	3	11	2.5928571428	2.5928571429		
* 14	3	12	2.5714285714	2.5714285715		
* 14	3	13	2.5535714285	2.5535714286		
* 14	3	14	2.5384615384	2.5384615385		
* 14	3	15	2.5255102040	2.5255102041		
* 14	3	16	2.5142857142	2.5142857143		
* 14	3	17	2.5044642857	2.5044642858		
* 14	3	18	2.4957983193	2.4957983194		
* 14	3	19	2.4880952380	2.4880952381		
* 14	3	20	2.4812030075	2.4812030076		
* 14	3	21	2.4749999999	2.4750000000		
* 14	3	22	2.4693877551	2.4693877552		
* 14	3	23	2.4642857142	2.4642857143		
* 14	3	24	2.4596273291	2.4596273292		
* 14	3	25	2.4553571428	2.4553571429		
* 14	3	26	2.4514285714	2.4514285715		
* 14	3	27	2.4478021978	2.4478021979		
* 14	3	28	2.4444444444	2.4444444445		
* 14	3	29	2.4413265306	2.4413265307		
* 14	3	30	2.4384236453	2.4384236454		
* 14	3	31	2.4357142857	2.4357142858		

* 14	3	32	2.4331797235	2.4331797236		
* 14	3	33	2.4308035714	2.4308035715		
* 14	3	34	2.4285714285	2.4285714286		
* 14	3	35	2.4264705882	2.4264705883		
* 14	3	36	2.4244897959	2.4244897960		
* 14	3	37	2.4226190476	2.4226190477		
* 14	3	38	2.4208494208	2.4208494209		
* 14	3	39	2.4191729323	2.4191729324		
* 14	3	40	2.4175824175	2.4175824176		
* 14	3	41	2.4160714285	2.4160714286		
* 14	3	42	2.4146341463	2.4146341464		
* 14	3	43	2.4132653061	2.4132653062		
* 14	3	44	2.4119601328	2.4119601329		
* 14	3	45	2.4107142857	2.4107142858		
* 14	3	46	2.4095238095	2.4095238096		
* 14	3	47	2.4083850931	2.4083850932		
* 14	3	48	2.4072948328	2.4072948329		
* 14	3	49	2.4062499999	2.4062500000		
* 14	3	50	2.4052478134	2.4052478135		
* 14	3	56	2.3999999999	2.4000000000		
	14	3	70	2.3881194065	2.3913043479	
* 15	1	3	0.9999999999	1.0000000000	tight bound	
* 15	1	4	0.9999999999	1.0000000000	tight bound	
* 15	1	5	0.9999999999	1.0000000000	tight bound	
* 15	1	6	0.9999999999	1.0000000000	tight bound	
* 15	1	7	0.9999999999	1.0000000000	tight bound	
* 15	1	8	0.9999999999	1.0000000000	tight bound	
* 15	1	9	0.9999999999	1.0000000000	tight bound	
* 15	1	10	0.9999999999	1.0000000000	tight bound	
* 15	1	11	0.9999999999	1.0000000000	tight bound	
* 15	1	12	0.9999999999	1.0000000000	tight bound	
* 15	1	13	0.9999999999	1.0000000000	tight bound	
* 15	1	14	0.9999999999	1.0000000000	tight bound	
* 15	1	15	0.9999999999	1.0000000000	tight bound	
* 15	1	16	0.9955555555	0.9955555556	tight bound	
	15	1	17	0.9902477343	0.9916666667	Henry Cohn
	15	1	18	0.9868130968	0.9882352942	
	15	1	19	0.9825953005	0.9851851852	Henry Cohn
	15	1	20	0.9798357077	0.9824561404	
	15	1	21	0.9795918367	0.9800000000	
	15	1	22	0.9760677434	0.9777777778	
	15	1	23	0.9734967714	0.9757575758	
	15	1	24	0.9719021272	0.9739130435	
	15	1	25	0.9698180096	0.9722222223	
	15	1	26	0.9675054613	0.9706666667	
	15	1	27	0.9658258853	0.9692307693	
	15	1	28	0.9638514406	0.9679012346	
	15	1	29	0.9622932446	0.9666666667	
	15	1	30	0.9606842012	0.9655172414	
	15	1	31	0.9591675988	0.9644444445	
	15	1	32	0.9577699189	0.9634408603	

15	1	33	0.9563658918	0.9625000000		
15	1	34	0.9549865430	0.9616161617		
15	1	35	0.9537565770	0.9607843138		
15	1	36	0.9525782546	0.9600000000		
15	1	37	0.9512902328	0.9592592593		
15	1	38	0.9501564640	0.9585585586		
15	1	39	0.9490694927	0.9578947369		
15	1	40	0.9477557199	0.9572649573		
15	1	41	0.9466636205	0.9566666667		
15	1	42	0.9456118295	0.9560975610		
15	1	43	0.9445705635	0.9555555556		
15	1	44	0.9435117190	0.9550387597		
15	1	45	0.9426906567	0.9545454546		
15	1	46	0.9414543021	0.9540740741		
15	1	47	0.9405619580	0.9536231885		
15	1	48	0.9397088933	0.9531914894		
15	1	49	0.9388594788	0.9527777778		
15	1	50	0.9379233672	0.9523809524		
*	15	2	3	1.9999999999	2.0000000000	tight bound
*	15	2	4	1.9999999999	2.0000000000	tight bound
*	15	2	5	1.9999999999	2.0000000000	tight bound
*	15	2	6	1.9999999999	2.0000000000	tight bound
*	15	2	7	1.9999999999	2.0000000000	tight bound
	15	2	8	1.9795918367	1.9809523810	
	15	2	9	1.9497025614	1.9500000000	
*	15	2	10	1.9259259259	1.9259259260	
*	15	2	11	1.9066666666	1.9066666667	
*	15	2	12	1.8909090909	1.8909090910	
*	15	2	13	1.8777777777	1.8777777778	
*	15	2	14	1.8666666666	1.8666666667	
*	15	2	15	1.8571428571	1.8571428572	
*	15	2	16	1.8488888888	1.8488888889	
*	15	2	17	1.8416666666	1.8416666667	
*	15	2	18	1.8352941176	1.8352941177	
*	15	2	19	1.8296296296	1.8296296297	
*	15	2	20	1.8245614035	1.8245614036	
*	15	2	21	1.8199999999	1.8200000000	
*	15	2	22	1.8158730158	1.8158730159	
*	15	2	23	1.8121212121	1.8121212122	
*	15	2	24	1.8086956521	1.8086956522	
*	15	2	25	1.8055555555	1.8055555556	
*	15	2	26	1.8026666666	1.8026666667	
*	15	2	27	1.7999999999	1.8000000000	
*	15	2	28	1.7975308641	1.7975308642	
*	15	2	29	1.7952380952	1.7952380953	
*	15	2	30	1.7931034482	1.7931034483	
*	15	2	31	1.7911111111	1.7911111112	
*	15	2	32	1.7892473118	1.7892473119	
*	15	2	33	1.7874999999	1.7875000000	
*	15	2	34	1.7858585858	1.7858585859	
*	15	2	35	1.7843137254	1.7843137255	

* 15	2	36	1.7828571428	1.7828571429		
* 15	2	37	1.7814814814	1.7814814815		
* 15	2	38	1.7801801801	1.7801801802		
* 15	2	39	1.7789473684	1.7789473685		
* 15	2	40	1.7777777777	1.7777777778		
* 15	2	41	1.7766666666	1.7766666667		
* 15	2	42	1.7756097560	1.7756097561		
* 15	2	43	1.7746031746	1.7746031747		
* 15	2	44	1.7736434108	1.7736434109		
* 15	2	45	1.7727272727	1.7727272728		
	15	2	46	1.7718518263	1.7718518519	unclear whether bound is tight
	15	2	47	1.7709980945	1.7710144928	
	15	2	48	1.7701248214	1.7702127660	
	15	2	49	1.7692215240	1.7694444445	
	15	2	50	1.7682317597	1.7687074830	
	15	2	60	1.7574728085	1.7627118645	
* 15	3	3	2.9999999999	3.0000000000	tight bound	
* 15	3	4	2.9999999999	3.0000000000	tight bound	
* 15	3	5	2.9999999999	3.0000000000	tight bound	
* 15	3	6	2.8799999999	2.8800000000		
* 15	3	7	2.7999999999	2.8000000000		
* 15	3	8	2.7428571428	2.7428571429		
* 15	3	9	2.6999999999	2.7000000000		
* 15	3	10	2.6666666666	2.6666666667		
* 15	3	11	2.6399999999	2.6400000000		
* 15	3	12	2.6181818181	2.6181818182		
* 15	3	13	2.5999999999	2.6000000000		
* 15	3	14	2.5846153846	2.5846153847		
* 15	3	15	2.5714285714	2.5714285715		
* 15	3	16	2.5599999999	2.5600000000		
* 15	3	17	2.5499999999	2.5500000000		
* 15	3	18	2.5411764705	2.5411764706		
* 15	3	19	2.5333333333	2.5333333334		
* 15	3	20	2.5263157894	2.5263157895		
* 15	3	21	2.5199999999	2.5200000000		
* 15	3	22	2.5142857142	2.5142857143		
* 15	3	23	2.5090909090	2.5090909091		
* 15	3	24	2.5043478260	2.5043478261		
* 15	3	25	2.4999999999	2.5000000000		
* 15	3	26	2.4959999999	2.4960000000		
* 15	3	27	2.4923076923	2.4923076924		
* 15	3	28	2.4888888888	2.4888888889		
* 15	3	29	2.4857142857	2.4857142858		
* 15	3	30	2.4827586206	2.4827586207		
* 15	3	31	2.4799999999	2.4800000000		
* 15	3	32	2.4774193548	2.4774193549		
* 15	3	33	2.4749999999	2.4750000000		
* 15	3	34	2.4727272727	2.4727272728		
* 15	3	35	2.4705882352	2.4705882353		
* 15	3	36	2.4685714285	2.4685714286		
* 15	3	37	2.4666666666	2.4666666667		

* 15	3	38	2.4648648648	2.4648648649		
* 15	3	39	2.4631578947	2.4631578948		
* 15	3	40	2.4615384615	2.4615384616		
* 15	3	41	2.4599999999	2.4600000000		
* 15	3	42	2.4585365853	2.4585365854		
* 15	3	43	2.4571428571	2.4571428572		
* 15	3	44	2.4558139534	2.4558139535		
* 15	3	45	2.4545454545	2.4545454546		
* 15	3	46	2.4533333333	2.4533333334		
* 15	3	47	2.4521739130	2.4521739131		
* 15	3	48	2.4510638297	2.4510638298		
* 15	3	49	2.4499999999	2.4500000000		
* 15	3	50	2.4489795918	2.4489795919		
* 15	3	60	2.4406779661	2.4406779662		
	15	3	75	2.4308855203	2.4324324325	
* 16	1	3	0.9999999999	1.0000000000	tight bound	
* 16	1	4	0.9999999999	1.0000000000	tight bound	
* 16	1	5	0.9999999999	1.0000000000	tight bound	
* 16	1	6	0.9999999999	1.0000000000	tight bound	
* 16	1	7	0.9999999999	1.0000000000	tight bound	
* 16	1	8	0.9999999999	1.0000000000	tight bound	
* 16	1	9	0.9999999999	1.0000000000	tight bound	
* 16	1	10	0.9999999999	1.0000000000	tight bound	
* 16	1	11	0.9999999999	1.0000000000	tight bound	
* 16	1	12	0.9999999999	1.0000000000	tight bound	
* 16	1	13	0.9999999999	1.0000000000	tight bound	
* 16	1	14	0.9999999999	1.0000000000	tight bound	
* 16	1	15	0.9999999999	1.0000000000	tight bound	
* 16	1	16	0.9999999999	1.0000000000	tight bound	
* 16	1	17	0.9960937499	0.9960937500	tight bound	
	16	1	18	0.9917355371	0.9926470589	
	16	1	19	0.9876376032	0.9895833334	
	16	1	20	0.9850978821	0.9868421053	
	16	1	21	0.9821412271	0.9843750000	
	16	1	22	0.9808005969	0.9821428572	
	16	1	23	0.9795918367	0.9801136364	
	16	1	24	0.9761802947	0.9782608696	
	16	1	25	0.9747366327	0.9765625000	
	16	1	26	0.9733670818	0.9750000000	
	16	1	27	0.9708073006	0.9735576924	
	16	1	28	0.9691318286	0.9722222223	
	16	1	29	0.9674988174	0.9709821429	
	16	1	30	0.9660242548	0.9698275863	
	16	1	31	0.9646696663	0.9687500000	
	16	1	32	0.9632458804	0.9677419355	
	16	1	33	0.9619854431	0.9667968750	
	16	1	34	0.9606217125	0.9659090910	
	16	1	35	0.9593838995	0.9650735295	
	16	1	36	0.9582282688	0.9642857143	
	16	1	37	0.9571169616	0.9635416667	
	16	1	38	0.9559973412	0.9628378379	

16	1	39	0.9549581817	0.9621710527		
16	1	40	0.9539098714	0.9615384616		
16	1	41	0.9529470156	0.9609375000		
16	1	42	0.9519322639	0.9603658537		
16	1	43	0.9509225749	0.9598214286		
16	1	44	0.9499665253	0.9593023256		
16	1	45	0.9489887826	0.9588068182		
16	1	46	0.9480581677	0.9583333334		
16	1	47	0.9471223635	0.9578804348		
16	1	48	0.9461841826	0.9574468086		
16	1	49	0.9453917393	0.9570312500		
16	1	50	0.9445463383	0.9566326531		
*	16	2	3	1.9999999999	2.0000000000	tight bound
*	16	2	4	1.9999999999	2.0000000000	tight bound
*	16	2	5	1.9999999999	2.0000000000	tight bound
*	16	2	6	1.9999999999	2.0000000000	tight bound
*	16	2	7	1.9999999999	2.0000000000	tight bound
*	16	2	8	1.9999999999	2.0000000000	tight bound
*	16	2	9	1.9687499999	1.9687500000	
*	16	2	10	1.9444444444	1.9444444445	
*	16	2	11	1.9249999999	1.9250000000	
*	16	2	12	1.9090909090	1.9090909091	
*	16	2	13	1.8958333333	1.8958333334	
*	16	2	14	1.8846153846	1.8846153847	
*	16	2	15	1.8749999999	1.8750000000	
*	16	2	16	1.8666666666	1.8666666667	
*	16	2	17	1.8593749999	1.8593750000	
*	16	2	18	1.8529411764	1.8529411765	
*	16	2	19	1.8472222222	1.8472222223	
*	16	2	20	1.8421052631	1.8421052632	
*	16	2	21	1.8374999999	1.8375000000	
*	16	2	22	1.8333333333	1.8333333334	
*	16	2	23	1.8295454545	1.8295454546	
*	16	2	24	1.8260869565	1.8260869566	
*	16	2	25	1.8229166666	1.8229166667	
*	16	2	26	1.8199999999	1.8200000000	
*	16	2	27	1.8173076923	1.8173076924	
*	16	2	28	1.8148148148	1.8148148149	
*	16	2	29	1.8124999999	1.8125000000	
*	16	2	30	1.8103448275	1.8103448276	
*	16	2	31	1.8083333333	1.8083333334	
*	16	2	32	1.8064516129	1.8064516130	
*	16	2	33	1.8046874999	1.8046875000	
*	16	2	34	1.8030303030	1.8030303031	
*	16	2	35	1.8014705882	1.8014705883	
*	16	2	36	1.7999999999	1.8000000000	
*	16	2	37	1.7986111111	1.7986111112	
*	16	2	38	1.7972972972	1.7972972973	
*	16	2	39	1.7960526315	1.7960526316	
*	16	2	40	1.7948717948	1.7948717949	
*	16	2	41	1.7937499999	1.7937500000	

* 16	2	42	1.7926829268	1.7926829269		
* 16	2	43	1.7916666666	1.7916666667		
* 16	2	44	1.7906976744	1.7906976745		
* 16	2	45	1.7897727272	1.7897727273		
* 16	2	46	1.7888888888	1.7888888889		
* 16	2	47	1.7880434782	1.7880434783		
* 16	2	48	1.7872340425	1.7872340426		
	16	2	49	1.7864578165	1.7864583334	
	16	2	50	1.7857113491	1.7857142858	
	16	2	64	1.7724763231	1.7777777778	
* 16	3	3	2.9999999999	3.0000000000	tight bound	
* 16	3	4	2.9999999999	3.0000000000	tight bound	
* 16	3	5	2.9999999999	3.0000000000	tight bound	
	16	3	6	2.9199999999	2.9250000000	
	16	3	7	2.8437499980	2.8437500000	unclear whether bound is tight
* 16	3	8	2.7857142857	2.7857142858		
* 16	3	9	2.7421874999	2.7421875000		
* 16	3	10	2.7083333333	2.7083333334		
* 16	3	11	2.6812499999	2.6812500000		
* 16	3	12	2.6590909090	2.6590909091		
* 16	3	13	2.6406249999	2.6406250000		
* 16	3	14	2.6249999999	2.6250000000		
* 16	3	15	2.6116071428	2.6116071429		
* 16	3	16	2.5999999999	2.6000000000		
* 16	3	17	2.5898437499	2.5898437500		
* 16	3	18	2.5808823529	2.5808823530		
* 16	3	19	2.5729166666	2.5729166667		
* 16	3	20	2.5657894736	2.5657894737		
* 16	3	21	2.5593749999	2.5593750000		
* 16	3	22	2.5535714285	2.5535714286		
* 16	3	23	2.5482954545	2.5482954546		
* 16	3	24	2.5434782608	2.5434782609		
* 16	3	25	2.5390624999	2.5390625000		
* 16	3	26	2.5349999999	2.5350000000		
* 16	3	27	2.5312499999	2.5312500000		
* 16	3	28	2.5277777777	2.5277777778		
* 16	3	29	2.5245535714	2.5245535715		
* 16	3	30	2.5215517241	2.5215517242		
* 16	3	31	2.5187499999	2.5187500000		
* 16	3	32	2.5161290322	2.5161290323		
* 16	3	33	2.5136718749	2.5136718750		
* 16	3	34	2.5113636363	2.5113636364		
* 16	3	35	2.5091911764	2.5091911765		
* 16	3	36	2.5071428571	2.5071428572		
* 16	3	37	2.5052083333	2.5052083334		
* 16	3	38	2.5033783783	2.5033783784		
* 16	3	39	2.5016447368	2.5016447369		
* 16	3	40	2.4999999999	2.5000000000		
* 16	3	41	2.4984374999	2.4984375000		
* 16	3	42	2.4969512195	2.4969512196		
* 16	3	43	2.4955357142	2.4955357143		

★ 16	3	44	2.4941860465	2.4941860466
★ 16	3	45	2.4928977272	2.4928977273
★ 16	3	46	2.4916666666	2.4916666667
★ 16	3	47	2.4904891304	2.4904891305
★ 16	3	48	2.4893617021	2.4893617022
★ 16	3	49	2.4882812499	2.4882812500
★ 16	3	50	2.4872448979	2.4872448980
★ 16	3	64	2.4761904761	2.4761904762
16	3	80	2.4667347824	2.4683544304

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