Designation: D3665 – 12

Standard Practice for Random Sampling of Construction Materials[1]

This standard is issued under the fixed designation D3665; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice covers the determination of random locations (or timing) at which samples of construction materials can be taken. For the exact physical procedures for securing the sample, such as a description of the sampling tool, the number of increments needed for a sample, or the size of the sample, reference should be made to the appropriate standard method. The selection procedures in Section 6 utilize the table of four-digit numbers given in Table 1.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C172 Practice for Sampling Freshly Mixed Concrete
C183 Practice for Sampling and the Amount of Testing of Hydraulic Cement
D75 Practice for Sampling Aggregates
D140 Practice for Sampling Bituminous Materials
D345 Test Method for Sampling and Testing Calcium Chloride for Roads and Structural Applications
D979 Practice for Sampling Bituminous Paving Mixtures
D5361 Practice for Sampling Compacted Bituminous Mixtures for Laboratory Testing
E105 Practice for Probability Sampling of Materials
E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process
E141 Practice for Acceptance of Evidence Based on the Results of Probability Sampling

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *representative sample, n*—(*1*) a random sample; or (*2*) an unbiased sample.

3.1.1.1 *random sample, n*—a sample obtained from a lot of material in such a manner that all parts of the lot have a known probability of being included in the sample.

3.1.1.1 *Discussion*—An example of random sample is the case where specifications limit roadway sampling to within one foot of the edge, therefore the probability of inclusion of samples within one foot of the edge is zero.

3.1.1.2 *unbiased sample, n*—a sample obtained from a lot of material in such a manner that all parts of the lot have an equal probability of being included in the sample.

4. Significance and Use

4.1 This practice is useful for determining the location or time, or both, to take a sample in order to minimize any unintentional bias on the part of the person taking the sample.

NOTE 1—The effectiveness of this practice in achieving random samples is limited only by the conscientiousness of the user in following the stipulated procedures.

4.2 The selection procedures and examples in this standard provide a practical approach for ensuring that construction material samples are obtained in a random manner. Additional details concerning the number of sample increments, the number of samples, the quantities of material in each, and the procedures for extracting sample increments or samples from the construction lot or process are contained in Practices C172, C183, D75, D140, D979, D5361, and Test Method D345.

4.3 This standard contains examples citing road and paving materials. The concepts outlined herein are applicable to the random sampling of any construction material and can easily be adapted thereto.

4.4 Additional sampling guidance is provided in Practice E105 concerning probability sampling, Practice E122 concerning choosing sample sizes to estimate the average quality of a lot or process (see Note 2), and in Practice E141 for acceptance of evidence based on results of probability sampling.

[1] This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.30 on Methods of Sampling.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

NOTE 2—The guidance contained in Practice E122 is not available in other documents referenced in this section.

4.5 The best and most practical method for ensuring that samples of construction materials include the full range of a construction process is by incorporating a stratified-random sampling procedure into the sampling process. To implement a stratified-random sampling procedure, divide the lot to be sampled into the desired number of equal sublots and randomly sample each sublot in accordance with this standard.

NOTE 3—If the sublots are of unequal size, it will likely be necessary to weight the samples in order to maintain a fair and defensible sampling process.

TABLE 1 Table of Random Numbers

	Column																			
Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0.0356	0.8697	0.2205	0.4538	0.8827	0.4225	0.4008	0.4615	0.7901	0.6500	0.3838	0.6723	0.3978	0.8775	0.5588	0.8829	0.8980	0.3108	0.8204	0.5809
2	0.8580	0.2990	0.4644	0.4871	0.8163	0.9263	0.4562	0.6337	0.3934	0.4141	0.9521	0.2879	0.6361	0.2021	0.7589	0.1870	0.9183	0.6149	0.4569	0.0378
3	0.8868	0.7446	0.6652	0.8173	0.4798	0.0117	0.3324	0.0097	0.6668	0.0963	0.0875	0.8582	0.7717	0.2669	0.0231	0.3648	0.2685	0.9928	0.9793	0.4411
4	0.7940	0.9892	0.5329	0.1233	0.0121	0.1633	0.2466	0.6142	0.3381	0.0445	0.3771	0.5309	0.9193	0.6072	0.1577	0.4387	0.7038	0.8757	0.2657	0.3006
5	0.0305	0.8423	0.6766	0.4190	0.2374	0.8753	0.4063	0.3408	0.9021	0.9039	0.5236	0.8083	0.3872	0.6830	0.8937	0.1957	0.8938	0.5609	0.7841	0.9078
6	0.1990	0.1379	0.1276	0.8425	0.7700	0.0468	0.4882	0.7197	0.6832	0.7265	0.1392	0.4944	0.1193	0.2191	0.9428	0.0598	0.1253	0.0438	0.2364	0.8283
7	0.7772	0.5641	0.3472	0.7382	0.3921	0.6947	0.1795	0.8053	0.3994	0.8987	0.9821	0.3976	0.9681	0.0133	0.4219	0.2847	0.6499	0.7325	0.2250	0.7163
8	0.8062	0.3416	0.7687	0.1519	0.3264	0.6758	0.9357	0.1854	0.4155	0.1200	0.6862	0.9827	0.8000	0.5474	0.6931	0.0730	0.7022	0.4352	0.8045	0.9308
9	0.0653	0.1296	0.4614	0.5070	0.1989	0.9625	0.9050	0.9109	0.3074	0.0470	0.8219	0.9812	0.8277	0.3898	0.1725	0.6658	0.2857	0.7811	0.1973	0.1144
10	0.4181	0.4971	0.3942	0.4448	0.2319	0.5155	0.9658	0.1595	0.1979	0.3377	0.2642	0.3430	0.0945	0.2011	0.5689	0.1731	0.4044	0.3248	0.2343	0.7948
11	0.9174	0.0714	0.3789	0.6153	0.5821	0.9347	0.5790	0.4254	0.8405	0.8805	0.5125	0.1703	0.5123	0.9250	0.5521	0.2550	0.6623	0.5314	0.3974	0.8612
12	0.3636	0.0533	0.7853	0.8393	0.2079	0.6486	0.7869	0.2127	0.2143	0.8966	0.2007	0.7918	0.5869	0.1063	0.8177	0.7662	0.8717	0.6379	0.8377	0.1199
13	0.5300	0.7917	0.4838	0.5933	0.1910	0.7645	0.3495	0.6484	0.9602	0.4602	0.1401	0.5121	0.4541	0.9585	0.7676	0.3336	0.9076	0.2465	0.8121	0.7186
14	0.2863	0.9575	0.2481	0.0518	0.1765	0.9679	0.1299	0.9131	0.3051	0.7447	0.3026	0.2638	0.8831	0.6835	0.9893	0.9380	0.2478	0.8369	0.8063	0.3094
15	0.0919	0.8835	0.1516	0.0738	0.7219	0.3144	0.1118	0.5779	0.3448	0.8988	0.4771	0.3194	0.5435	0.7660	0.2173	0.7613	0.7741	0.6532	0.7655	0.5319
16	0.2116	0.7835	0.9001	0.3824	0.2247	0.0826	0.5451	0.8301	0.6777	0.5574	0.1168	0.6111	0.6003	0.3233	0.1176	0.7856	0.7148	0.2957	0.5507	0.7956
17	0.5583	0.4657	0.9500	0.9321	0.7194	0.0313	0.1899	0.5829	0.9650	0.6273	0.6164	0.0801	0.8359	0.6847	0.2880	0.9049	0.7390	0.6729	0.5807	0.4152
18	0.3455	0.6793	0.5516	0.6413	0.0806	0.9489	0.2105	0.5373	0.5276	0.7742	0.6070	0.1399	0.4579	0.5358	0.8796	0.3889	0.9118	0.6181	0.3749	0.1136
19	0.9809	0.1277	0.2121	0.6564	0.8096	0.1339	0.1651	0.8728	0.5060	0.2562	0.0575	0.4796	0.1025	0.8165	0.4659	0.6653	0.2532	0.6848	0.5896	0.6978
20	0.3544	0.3332	0.1076	0.9623	0.9570	0.9005	0.7518	0.2124	0.7816	0.0524	0.3852	0.2564	0.3572	0.2538	0.2743	0.2239	0.2928	0.4689	0.6561	0.5525
21	0.3107	0.4720	0.8457	0.7880	0.3941	0.8184	0.7261	0.8509	0.8218	0.6054	0.2363	0.3096	0.9851	0.6575	0.3180	0.2515	0.0205	0.4551	0.9801	0.4422
22	0.3105	0.8302	0.4188	0.3404	0.6603	0.8052	0.7317	0.0376	0.4959	0.8992	0.4175	0.1798	0.6674	0.0772	0.9646	0.1547	0.9817	0.3133	0.9012	0.0555
23	0.2795	0.5932	0.5858	0.6159	0.3832	0.7783	0.5636	0.6465	0.0149	0.0369	0.7373	0.5268	0.1544	0.0465	0.9359	0.5398	0.4154	0.6665	0.5770	0.7976
24	0.1222	0.4230	0.9137	0.6906	0.6160	0.5612	0.2425	0.9598	0.2475	0.1652	0.2774	0.4059	0.7871	0.4323	0.2282	0.7970	0.1964	0.8050	0.5935	0.6852
25	0.3933	0.4639	0.9741	0.9616	0.5343	0.6853	0.0568	0.0109	0.5199	0.2707	0.7138	0.4932	0.4308	0.1584	0.0059	0.0467	0.8550	0.7407	0.3616	0.8418
26	0.6375	0.9508	0.6063	0.6271	0.0392	0.9462	0.7996	0.9033	0.8493	0.5789	0.3668	0.9685	0.3273	0.9763	0.7681	0.3785	0.3716	0.6096	0.5991	0.4977
27	0.8828	0.8225	0.7213	0.8026	0.9042	0.2941	0.4287	0.6298	0.3062	0.4836	0.1267	0.3965	0.5990	0.4737	0.1563	0.8610	0.2998	0.1816	0.4540	0.1608
28	0.4528	0.0677	0.9607	0.6735	0.7048	0.3927	0.6913	0.3480	0.7553	0.4496	0.4527	0.3829	0.3461	0.4393	0.0062	0.9974	0.3989	0.2966	0.0273	0.2672
29	0.8241	0.9913	0.6051	0.1978	0.7680	0.0890	0.9716	0.5439	0.2246	0.5703	0.5120	0.7354	0.6625	0.2479	0.4592	0.3497	0.7953	0.2891	0.1571	0.4415
30	0.7673	0.7565	0.8132	0.3048	0.7381	0.1866	0.3811	0.1395	0.9473	0.4633	0.2630	0.0805	0.5110	0.5886	0.6523	0.8708	0.1482	0.9179	0.7410	0.1800
31	0.1455	0.2822	0.5090	0.0486	0.1449	0.3154	0.6839	0.6125	0.2583	0.0908	0.4781	0.4029	0.3166	0.9201	0.9360	0.1265	0.6174	0.4998	0.7994	0.4431
32	0.5559	0.4417	0.9958	0.1375	0.3938	0.3579	0.3056	0.4888	0.9534	0.5698	0.4302	0.1562	0.3409	0.4339	0.5964	0.1856	0.9748	0.8212	0.8917	0.6114
33	0.3869	0.0389	0.8325	0.1481	0.9486	0.4295	0.2151	0.9310	0.6474	0.4319	0.8648	0.1625	0.7669	0.1420	0.1235	0.7456	0.4629	0.8687	0.8111	0.2848
34	0.6846	0.5393	0.5101	0.6459	0.3384	0.7169	0.7646	0.5726	0.7334	0.8675	0.5246	0.5501	0.7638	0.0602	0.5551	0.7096	0.8306	0.1124	0.9806	0.8261
35	0.7412	0.1670	0.9434	0.5619	0.7958	0.7664	0.5776	0.7392	0.8174	0.2921	0.4320	0.4198	0.4405	0.8766	0.5255	0.6235	0.2760	0.8997	0.3319	0.8305
36	0.2962	0.8959	0.1923	0.2913	0.3496	0.7490	0.3268	0.6689	0.5693	0.6985	0.8471	0.3621	0.2606	0.9251	0.4396	0.9781	0.9281	0.4138	0.5440	0.4003
37	0.5891	0.2476	0.5682	0.7971	0.7684	0.7739	0.9110	0.5279	0.2185	0.2267	0.5786	0.5259	0.6820	0.5864	0.8436	0.2467	0.2174	0.1038	0.3551	0.0790
38	0.6755	0.6776	0.0063	0.7536	0.4472	0.7270	0.6630	0.7563	0.9819	0.7059	0.4127	0.5392	0.2353	0.2671	0.2581	0.4313	0.1492	0.7071	0.4245	0.5256
39	0.0304	0.3065	0.7253	0.5462	0.4887	0.9677	0.0836	0.7073	0.6673	0.8901	0.6168	0.1682	0.6479	0.5838	0.9895	0.9052	0.8041	0.3085	0.7294	0.5430
40	0.1217	0.6469	0.1386	0.6736	0.8927	0.8188	0.3325	0.1298	0.1470	0.9798	0.4001	0.5649	0.4773	0.1993	0.5547	0.3928	0.1065	0.4847	0.7819	0.3952
41	0.7083	0.2750	0.5020	0.2919	0.1907	0.9975	0.1699	0.1580	0.2987	0.2015	0.4603	0.0733	0.8926	0.1103	0.1701	0.5732	0.7292	0.1786	0.8474	0.9932
42	0.0138	0.7882	0.5022	0.1523	0.0226	0.4346	0.6656	0.1293	0.6284	0.5922	0.2738	0.5046	0.0043	0.3289	0.6412	0.5496	0.0359	0.8640	0.7372	0.0145
43	0.9341	0.1961	0.2243	0.5299	0.3272	0.0774	0.3768	0.3298	0.3886	0.4275	0.0606	0.7166	0.3356	0.5960	0.3007	0.0351	0.9280	0.7488	0.5522	0.1032
44	0.8614	0.7227	0.3796	0.7818	0.6428	0.7740	0.6341	0.5229	0.2931	0.3303	0.8021	0.4166	0.0175	0.0163	0.1924	0.0722	0.0368	0.3633	0.9159	0.6930
45	0.5385	0.5289	0.9784	0.8562	0.5176	0.7345	0.9587	0.0743	0.6001	0.0235	0.5561	0.3000	0.6912	0.5096	0.0435	0.5320	0.2085	0.1597	0.4799	0.5171
46	0.5979	0.6094	0.0863	0.2458	0.9090	0.2937	0.8195	0.1778	0.1189	0.6117	0.6220	0.7426	0.8556	0.4642	0.7908	0.4669	0.5250	0.5791	0.6536	0.2349
47	0.9057	0.1826	0.2980	1.0000	0.6281	0.9134	0.7457	0.4114	0.1380	0.8544	0.9832	0.2391	0.3897	0.6078	0.5774	0.8249	0.3363	0.7580	0.3101	0.8290
48	0.4315	0.5204	0.7018	0.5839	0.8344	0.3552	0.3506	0.2907	0.2367	0.7180	0.4895	0.7000	0.3876	0.6223	0.8169	0.7256	0.5919	0.1493	0.6872	0.6166
49	0.3747	0.3067	0.5837	0.3798	0.2122	0.1231	0.7528	0.5004	0.8587	0.2019	0.5503	0.8136	0.2197	0.3593	0.9098	0.6697	0.8790	0.9954	0.8384	0.2616
50	0.2108	0.5876	0.3779	0.3313	0.9510	0.7574	0.7844	0.0986	0.9460	0.8196	0.6916	0.3286	0.4119	0.1974	0.4312	0.7993	0.5471	0.0599	0.7504	0.1550
51	0.2546	0.6608	0.5509	0.3473	0.5846	0.8948	0.2115	0.3412	0.1180	0.0740	0.9903	0.9390	0.3151	0.6119	0.5192	0.2134	0.3132	0.5544	0.9249	0.4246
52	0.8546	0.5976	0.4030	0.6020	0.4150	0.1462	0.3160	0.2477	0.9297	0.7111	0.7067	0.7858	0.5707	0.0520	0.1583	0.2253	0.7338	0.5280	0.2334	0.0896
53	0.3835	0.8346	0.1555	0.9635	0.5912	0.5211	0.2264	0.1373	0.6416	0.2488	0.5816	0.8532	0.9682	0.1575	0.2873	0.8617	0.8485	0.2526	0.5128	0.1782
54	0.3164	0.9559	0.6894	0.3290	0.0857	0.1933	0.3185	0.0699	0.0431	0.2781	0.6186	0.0907	0.5089	0.1892	0.2572	0.9905	0.0665	0.1066	0.9961	0.9930

TABLE 1 *Continued*

Row	Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
55	0.3130	0.1475	0.9099	0.8060	0.0338	0.0625	0.0549	0.7349	0.3866	0.1752	0.5421	0.3931	0.6343	0.7156	0.8422	0.6514	0.7890	0.2924	0.1809	0.2692
56	0.7911	0.5716	0.0373	0.5861	0.1039	0.6798	0.8594	0.8317	0.0354	0.9736	0.8922	0.1227	0.5902	0.0797	0.7425	0.5556	0.2123	0.5029	0.1628	0.4869
57	0.9198	0.5400	0.0666	0.5460	0.4048	0.6112	0.4347	0.4186	0.9478	0.2586	0.9874	0.3600	0.0458	0.6272	0.1150	0.8650	0.4912	0.7474	0.5485	0.5702
58	0.8727	0.2502	0.4855	0.8685	0.4243	0.0791	0.4340	0.3848	0.9395	0.5653	0.0472	0.2773	0.5950	0.7770	0.2336	0.3219	0.4946	0.2358	0.0136	0.0330
59	0.7465	0.3035	0.9044	0.4627	0.0384	0.1256	0.9422	0.5983	0.0072	0.1259	0.0720	0.9546	0.0802	0.9629	0.8070	0.5780	0.2286	0.7404	0.7060	0.5826
60	0.4104	0.6921	0.0984	0.2920	0.0793	0.4349	0.4265	0.1730	0.0200	0.6064	0.1326	0.3555	0.9144	0.9922	0.7804	0.9459	0.1830	0.6811	0.4276	0.1316
61	0.1097	0.5659	0.6392	0.7802	0.6662	0.9464	0.3442	0.5566	0.8280	0.3671	0.7720	0.2833	0.3675	0.5129	0.0057	0.6463	0.6825	0.9235	0.6927	0.8999
62	0.6980	0.2260	0.4972	0.5389	0.6865	0.8203	0.1190	0.7523	0.7272	0.8088	0.2812	0.5218	0.1928	0.5062	0.5475	0.7935	0.9849	0.9666	0.1818	0.5131
63	0.2575	0.4500	0.9663	0.5629	0.8838	0.9085	0.5323	0.9553	0.3917	0.3432	0.6702	0.2046	0.6926	0.4418	0.2776	0.6738	0.2440	0.0118	0.5408	0.2125
64	0.3624	0.3423	0.8596	0.9755	0.4846	0.2517	0.5338	0.2676	0.9436	0.0976	0.4101	0.6086	0.0988	0.8668	0.4033	0.6795	0.6756	0.6212	0.7569	0.8055
65	0.8222	0.3631	0.3881	0.1022	0.3509	0.3887	0.2423	0.0577	0.5044	0.0706	0.7210	0.1573	0.5187	0.6372	0.4913	0.2858	0.4022	0.6483	0.1513	0.0025
66	0.4763	0.7779	0.3295	0.3471	0.0343	0.8435	0.6146	0.7817	0.4859	0.9916	0.8565	0.6196	0.8975	0.5998	0.2786	0.4389	0.7016	0.8589	0.5397	0.5203
67	0.5000	0.3427	0.8329	0.7514	0.2399	0.0183	0.7310	0.1436	0.5292	0.9037	0.0788	0.1806	0.5431	0.2875	0.5711	0.7307	0.5442	0.6565	0.9530	0.0185
68	0.9548	0.1317	0.3692	0.4280	0.6592	0.4038	0.3528	0.8551	0.7266	0.3088	0.6732	0.5436	0.5466	0.8979	0.5938	0.3667	0.3893	0.2952	0.1834	0.9225
69	0.8356	0.8715	0.8547	0.9212	0.8239	0.9386	0.6624	0.7850	0.0251	0.5142	0.9767	0.3939	0.6128	0.1647	0.3986	0.7305	0.6303	0.0500	0.6599	0.2715
70	0.5882	0.4558	0.9680	0.0627	0.2540	0.8893	0.4651	0.4861	0.2700	0.6421	0.9886	0.7685	0.9915	0.6972	0.6910	0.0873	0.9426	0.1312	0.3072	0.7391
71	0.2190	0.2271	0.2717	0.8276	0.0281	0.0763	0.2096	0.2451	0.4664	0.3208	0.1955	0.6079	0.7944	0.8260	0.4383	0.2789	0.2603	0.5531	0.0493	0.0605
72	0.2922	0.3093	0.5865	0.6215	0.4248	0.6450	0.6577	0.5731	0.3370	0.4061	0.0015	0.1508	0.1521	0.7616	0.2696	0.4490	0.8759	0.9814	0.3013	0.7892
73	0.1178	0.2965	0.1617	0.0297	0.3905	0.6713	0.4404	0.0547	0.6434	0.5139	0.6859	0.8806	0.4007	0.3244	0.1673	0.0682	0.2059	0.5847	0.1912	0.4636
74	0.1295	0.9782	0.2906	0.7815	0.7230	0.8611	0.4665	0.8308	0.3943	0.9129	0.6077	0.8336	0.8872	0.0830	0.1108	0.6274	0.3890	0.7675	0.5106	0.0111
75	0.5141	0.4623	0.5513	0.1438	0.1105	0.6557	0.5569	0.1110	0.2860	0.1020	0.3874	0.8288	0.6560	0.7091	0.6709	0.4762	0.7987	0.2315	0.1603	0.4196
76	0.5853	0.2747	0.6473	0.1026	0.2089	0.7015	0.5067	0.9451	0.1237	0.8133	0.6585	0.9194	0.0652	0.3249	0.0839	0.6641	0.0777	0.0878	0.9695	0.2816
77	0.4110	0.7807	0.8754	0.0541	0.4752	0.1526	0.5600	0.3168	0.0832	0.2293	0.3028	0.9696	0.4793	0.8392	0.1596	0.0992	0.1000	0.8046	0.9888	0.6655
78	0.5167	0.3983	0.4426	0.2527	0.1635	0.7252	0.1413	0.5606	0.8347	0.3875	0.7909	0.3786	0.8440	0.6594	0.5679	0.0012	0.5987	0.6515	0.9223	0.6139
79	0.1982	0.7567	0.1148	0.4870	0.0481	0.7068	0.3919	0.1331	0.2492	0.6501	0.0915	0.1450	0.8342	0.5792	0.6415	0.6476	0.2287	0.8181	0.3400	0.9688
80	0.4634	0.2602	0.5578	0.8942	0.7539	0.6455	0.6581	0.2793	0.9686	0.8559	0.1873	0.0860	0.1960	0.0564	0.8298	0.3618	0.3732	0.8265	0.1721	0.8501
81	0.0302	0.0719	0.0167	0.0066	0.7998	0.3643	0.4237	0.1904	0.8221	0.6369	0.7124	0.3628	0.0736	0.1422	0.1706	0.6000	0.3198	0.1669	0.2584	0.1477
82	0.4443	0.0143	0.7629	0.2361	0.8920	0.2954	0.5552	0.1488	0.9424	0.6084	0.2342	0.5625	0.2093	0.4201	0.5200	0.3414	0.3344	0.4109	0.7896	0.2328
83	0.0371	0.5697	0.8631	0.3015	0.4035	0.1266	0.6039	0.4485	0.1219	0.0303	0.1945	0.0559	0.4743	0.3084	0.4158	0.4693	0.1518	0.7710	0.4770	0.8066
84	0.4628	0.9706	0.7231	0.8601	0.3323	0.7347	0.0638	0.4956	0.4456	0.1691	0.4845	0.7761	0.6120	0.7964	0.9644	0.5884	0.9319	0.1410	0.2855	0.6175
85	0.9703	0.0829	0.5777	0.0586	0.8210	0.3002	0.3538	0.1160	0.2048	0.8852	0.9675	0.4803	0.1872	0.5223	0.8844	0.3855	0.3053	0.7120	0.7271	0.1683
86	0.8854	0.1850	0.7879	0.4043	0.6102	0.3582	0.5545	0.7288	0.0560	0.3410	0.1994	0.1654	0.2351	0.6783	0.2870	0.1052	0.7837	0.5800	0.5473	0.4377
87	0.3926	0.9017	0.7648	0.4238	0.7319	0.3531	0.5156	0.8029	0.4416	0.6563	0.9300	0.6920	0.6705	0.1062	0.3373	0.3542	0.3192	0.6976	0.3904	0.5391
88	0.1483	0.8554	0.5339	0.2454	0.5523	0.2567	0.0027	0.1445	0.6596	0.6345	0.3376	0.3545	0.9863	0.4532	0.1732	0.4079	0.9972	0.7152	0.3207	0.0498
89	0.7592	0.0971	0.6478	0.9858	0.9982	0.5885	0.8618	0.0453	0.6996	0.9081	0.2507	0.7709	0.0726	0.2402	0.7986	0.2821	0.0991	0.1210	0.8321	0.9303
90	0.6955	0.4163	0.4354	0.4244	0.4400	0.4936	0.2681	0.5122	0.4102	0.7316	0.1716	0.0904	0.4994	0.0655	0.2223	0.2513	0.9519	0.5237	0.2393	0.1736
91	0.4981	0.3125	0.6190	0.6731	0.9411	0.4116	0.3540	0.4132	0.1003	0.7107	0.8116	0.2221	0.6071	0.8360	0.0785	0.9453	0.0647	0.5115	0.0965	0.1802
92	0.2735	0.9790	0.3025	0.9467	0.2054	0.3637	0.7631	0.4447	0.8102	0.9413	0.2262	0.6778	0.2302	0.3177	0.5076	0.2923	0.5963	0.9988	0.9525	0.0238
93	0.6992	0.9299	0.0799	0.0193	0.3644	0.4494	0.1173	0.4441	0.4373	0.1261	0.5941	0.5752	0.3128	0.1081	0.7692	0.4842	0.4970	0.3292	0.3476	0.3851
94	0.3389	0.9630	0.2560	0.8841	0.9929	0.8908	0.6696	0.8924	0.9382	0.0367	0.3055	0.9999	0.2511	0.1208	0.5943	0.3966	0.2596	0.4973	0.5530	0.5827
95	0.4852	0.9074	0.3696	0.8701	0.9397	0.0403	0.4249	0.6616	0.3225	0.7302	0.9705	0.9594	0.8812	0.4216	0.1661	0.3439	0.0767	0.9278	0.3924	0.1397
96	0.5510	0.7836	0.0538	0.5080	0.8871	0.1212	0.5427	0.9899	0.8366	0.6305	0.7112	0.1986	0.3317	0.8271	0.8652	0.5811	0.5261	0.0779	0.6770	0.4655
97	0.6467	0.3791	0.5148	0.7082	0.2222	0.6147	0.2534	0.3685	0.6991	0.0669	0.3753	0.0400	0.8690	0.8703	0.9918	0.4433	0.8540	0.9216	0.3677	0.9164
98	0.8176	0.9404	0.0668	0.3498	0.1048	0.4597	0.5452	0.6403	0.5333	0.5977	0.7547	0.9387	0.1502	0.9701	0.3656	0.3819	0.7510	0.1971	0.5264	0.2433
99	0.9236	0.6258	0.1937	0.6027	0.2285	0.6666	0.9315	0.9538	0.9956	0.9491	0.1849	0.7845	0.6481	0.1051	0.5417	0.8270	0.6803	0.6724	0.2746	0.2333
100	0.5321	0.3037	0.4026	0.9737	0.9327	0.9430	0.1858	0.5202	0.6936	0.9253	0.7967	0.7937	0.2537	0.7593	0.8661	0.8025	0.5725	0.0406	0.1330	0.8593