

PONTIFICIA UNIVERSIDAD CATÓLICA DEL PERÚ

FACULTAD DE CIENCIAS E INGENIERÍA



PONTIFICIA
UNIVERSIDAD
CATÓLICA
DEL PERÚ

ALGORITMO GENÉTICO PARA LA ASIGNACIÓN DE TIPO DE AVIONES A VUELOS

Tesis para optar el Título de **Ingeniero Informático**, que presenta el bachiller:

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ANEXOS

1 Calibración del alfa

Anexo 1

	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75
1	-	11.29	11.29	11.29	11.62	11.62	11.62	11.62	12.60	12.67
2	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37
3	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.61
4	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.96
5	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.59
6	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.59
7	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.96
8	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
9	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
10	-	-	-	-	17.47	17.62	17.62	17.62	17.62	17.62
11	-	-	-	-	17.79	17.79	17.79	17.79	17.79	17.79
12	-	-	-	-	17.91	17.91	17.91	17.91	17.91	17.91
13	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
14	-	-	19.10	19.11	19.11	19.13	19.14	19.14	19.14	19.16
15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01
16	0.63	0.63	0.63	0.76	0.76	0.76	0.76	0.76	0.82	0.82
17	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
18	0.65	0.65	0.65	0.85	0.85	0.85	0.85	0.85	0.87	0.87
19	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
20	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
21	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
22	-	-	6.53	6.53	6.53	6.53	7.10	7.10	7.10	7.10
23	7.11	7.11	7.11	7.11	7.11	7.11	7.42	7.42	7.57	7.57
24	7.21	7.21	7.21	7.21	7.21	7.21	7.74	7.74	7.85	7.85
25	-	-	7.45	7.45	7.45	7.45	7.55	7.55	7.76	7.76
26	7.43	7.43	7.43	7.43	7.43	7.43	7.85	7.85	8.06	8.06
27	6.68	6.68	6.68	6.68	6.68	6.68	7.22	7.22	7.35	7.35
28	8.01	8.01	8.01	8.01	8.01	8.01	8.45	8.45	8.64	8.64
29	-	10.76	10.76	10.76	10.79	10.79	10.79	10.79	12.01	12.01
30	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.96
31	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.96
32	12.59	12.59	12.59	12.59	12.59	12.59	12.60	12.60	12.60	12.60
33	6.78	6.78	6.93	6.93	6.93	6.93	6.93	6.93	7.14	7.14
34	-	-	-	-	13.40	13.40	13.40	13.40	13.61	13.61
35	6.78	6.78	6.93	6.93	6.93	6.93	6.93	6.93	7.14	7.14
36	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
37	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
38	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
39	-	-	5.56	5.56	5.56	5.56	5.92	5.92	6.00	6.00
40	6.78	6.78	6.93	6.93	6.93	6.93	6.93	6.93	7.14	7.14

Anexo 2

	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76
1	11.62	11.62	12.59	12.84	12.84	12.84	12.84	12.84	12.84	12.84	12.90	12.92
2	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.37	10.56
3	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.56	11.61	11.71
4	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.82	11.82	11.96	11.92	11.96
5	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.44	12.44	12.59	12.59	12.59
6	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.44	12.59	12.59	12.59
7	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.82	11.82	11.96	11.96	11.96
8	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
9	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
10	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62	17.62
11	17.79	17.79	17.79	17.79	17.79	17.79	17.79	17.79	17.79	17.79	17.79	17.79
12	17.91	17.91	17.91	17.91	17.91	17.91	17.91	17.91	17.91	17.91	17.91	17.91
13	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68	14.68
14	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16
15	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
16	0.76	0.76	0.76	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
17	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
18	0.85	0.85	0.85	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
19	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
20	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
21	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48
22	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10	7.10
23	7.42	7.42	7.42	7.57	7.57	7.57	7.57	7.57	7.57	7.57	7.57	7.57
24	7.74	7.74	7.74	7.74	7.77	7.80	7.85	7.85	7.85	7.85	7.85	7.85
25	7.55	7.55	7.55	7.76	7.76	7.76	7.76	7.76	7.76	7.76	7.76	7.76
26	7.85	7.85	7.85	8.06	8.06	8.06	8.06	8.06	8.06	8.06	8.06	8.06
27	7.22	7.22	7.22	7.31	7.31	7.35	7.35	7.35	7.35	7.35	7.35	7.35
28	8.45	8.45	8.45	8.64	8.64	8.64	8.64	8.64	8.68	8.68	8.68	8.68
29	10.79	10.79	11.87	11.99	12.01	12.01	12.01	12.02	12.02	12.06	12.06	12.07
30	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.82	11.82	11.96	11.96	11.96
31	11.77	11.77	11.77	11.77	11.77	11.77	11.77	11.82	11.82	11.96	11.96	11.96
32	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60	12.60
33	6.93	6.93	6.93	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14
34	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61	13.61
35	6.93	6.93	6.93	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.13
36	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
37	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
38	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.40	0.42
39	5.92	5.92	5.92	5.92	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
40	6.93	6.93	6.93	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14

2 Calibración del número de iteraciones

Anexo 3

	1000		1500		2000		2500		3000	
1	12.21	1820	12.56	1813	12.56	1561	12.56	707	12.56	1064
2	10.37	161	10.37	259	10.37	301	10.37	392	10.37	427
3	11.56	189	11.61	301	11.61	371	11.61	462	11.61	581
4	11.92	196	11.96	308	11.96	385	11.96	595	11.96	651
5	12.47	203	12.47	378	12.59	413	12.59	511	12.59	588
6	12.29	231	12.48	294	12.48	413	12.48	490	12.48	602
7	11.77	203	11.84	315	11.96	420	11.96	497	11.96	609
8	14.67	1022	14.68	1309	14.68	1652	14.68	434	14.68	497
9	14.68	175	14.68	259	14.68	336	14.68	406	14.68	504
10	-	182	17.47	252	17.62	364	17.62	420	17.62	525
11	17.79	196	17.79	266	17.79	336	17.79	434	17.79	574
12	-	175	17.91	266	17.91	343	17.91	441	17.91	518
13	14.68	175	14.68	266	14.68	343	14.68	434	14.68	532
14	19.14	203	19.14	294	19.15	399	19.15	483	19.15	574
15	1.01	56	1.01	77	1.01	91	1.01	119	1.01	161
16	0.82	42	0.82	63	0.82	84	0.82	91	0.82	119
17	0.49	35	0.49	49	0.49	56	0.49	63	0.49	91
18	0.87	42	0.87	63	0.87	77	0.87	105	0.87	112
19	0.42	35	0.42	49	0.42	56	0.42	70	0.42	77
20	0.41	35	0.41	42	0.41	63	0.41	70	0.41	77
21	0.48	42	0.48	42	0.48	56	0.48	70	0.48	84
22	7.10	119	7.10	154	7.10	231	7.10	266	7.10	308
23	7.36	119	7.44	168	7.44	203	7.57	280	7.57	301
24	7.74	119	7.74	175	7.74	266	7.74	287	7.85	350
25	7.66	140	7.66	238	7.76	259	7.76	343	7.76	441
26	7.96	119	7.96	231	7.96	259	7.96	322	7.96	371
27	7.35	126	7.35	182	7.35	357	7.35	266	7.35	392
28	8.60	231	8.63	203	8.63	266	8.63	357	8.63	378
29	11.70	196	11.99	322	11.99	378	11.99	497	11.99	756
30	11.84	231	11.92	385	11.92	406	11.96	525	11.96	644
31	11.84	210	11.96	336	11.96	406	11.96	518	11.96	609
32	12.59	161	12.60	252	12.60	350	12.60	434	12.60	546
33	7.01	133	7.01	196	7.14	280	7.14	315	7.14	427
34	13.38	161	13.38	238	13.38	322	13.40	406	13.40	469
35	7.14	133	7.14	196	7.14	273	7.14	308	7.14	378
36	0.35	28	0.35	49	0.35	49	0.35	70	0.35	112
37	0.49	28	0.49	49	0.49	56	0.49	70	0.49	84
38	0.42	35	0.42	42	0.42	63	0.42	63	0.42	77
39	6.00	105	6.00	147	6.00	203	6.00	252	6.00	301
40	7.14	133	7.14	189	7.14	266	7.14	308	7.14	399

	3500		4000		4500		5000		5500	
1	12.80	1113	12.80	1505	12.80	882	12.80	966	12.80	1288
2	10.37	511	10.37	623	10.37	700	10.37	728	10.37	819
3	11.61	658	11.61	721	11.61	833	11.61	882	11.61	987
4	11.96	658	11.96	742	11.96	840	11.96	931	11.96	1057
5	12.59	693	12.59	805	12.59	882	12.59	959	12.59	1127
6	12.55	700	12.55	784	12.55	889	12.59	1001	12.59	1120
7	11.96	707	11.96	847	11.96	875	11.96	1022	11.96	1127
8	14.68	567	14.68	658	14.68	735	14.68	917	14.68	896
9	14.68	574	14.68	679	14.68	714	14.68	812	14.68	924
10	17.62	602	17.62	679	17.62	756	17.62	819	17.62	938
11	17.79	588	17.79	672	17.79	756	17.79	854	17.79	910
12	17.91	588	17.91	686	17.91	763	17.91	847	17.91	917
13	14.68	588	14.68	658	14.68	770	14.68	875	14.68	980
14	19.15	686	19.15	833	19.15	931	19.15	959	19.15	1127
15	1.01	175	1.01	196	1.01	217	1.01	238	1.01	266
16	0.82	133	0.82	154	0.82	168	0.82	196	0.82	203
17	0.49	98	0.49	105	0.49	112	0.49	126	0.49	147
18	0.87	133	0.87	154	0.87	168	0.87	196	0.87	189
19	0.42	91	0.42	112	0.42	119	0.42	154	0.42	154
20	0.41	91	0.41	112	0.41	112	0.41	126	0.41	140
21	0.48	91	0.48	119	0.48	119	0.48	126	0.48	147
22	7.10	371	7.10	427	7.10	504	7.10	546	7.10	574
23	7.57	350	7.57	392	7.57	455	7.57	476	7.57	532
24	7.85	427	7.85	469	7.85	609	7.85	567	7.85	616
25	7.76	483	7.76	532	7.76	686	7.76	679	7.76	728
26	7.96	406	8.06	469	8.06	553	8.06	581	8.06	644
27	7.35	371	7.35	406	7.35	476	7.35	525	7.35	574
28	8.64	476	8.64	497	8.64	623	8.64	637	8.64	728
29	11.99	644	11.99	714	11.99	819	12.06	945	12.06	1043
30	11.96	714	11.96	812	11.96	917	11.96	1022	11.96	1120
31	11.96	728	11.96	826	11.96	980	11.96	1022	11.96	1113
32	12.60	574	12.60	679	12.60	763	12.60	812	12.60	896
33	7.14	434	7.14	518	7.14	623	7.14	623	7.14	686
34	13.40	588	13.40	616	13.40	693	13.61	763	13.61	826
35	7.14	462	7.14	511	7.14	560	7.14	630	7.14	700
36	0.35	91	0.35	98	0.35	112	0.35	126	0.35	147
37	0.49	98	0.49	105	0.49	119	0.49	140	0.49	147
38	0.42	98	0.42	105	0.42	112	0.42	133	0.42	168
39	6.00	343	6.00	413	6.00	553	6.00	581	6.00	574
40	7.14	434	7.14	497	7.14	567	7.14	623	7.14	700

	6000		6500		7000		7500		8000	
1	12.80	1141	12.80	1148	12.80	1218	12.80	1421	12.80	1680
2	10.37	959	10.37	952	10.37	1043	10.37	1169	10.37	1197
3	11.61	1078	11.61	1449	11.61	1295	11.61	1330	11.61	1407
4	11.96	1148	11.96	1281	11.96	1323	11.96	1393	11.96	1519
5	12.59	1260	12.59	1246	12.59	1344	12.59	1463	12.59	1540
6	12.59	1190	12.59	1295	12.59	1372	12.59	1470	12.59	1729
7	11.96	1211	11.96	1288	11.96	1442	11.96	1470	11.96	1666
8	14.68	994	14.68	1064	14.68	1176	14.68	1218	14.68	1309
9	14.68	1057	14.68	1120	14.68	1148	14.68	1582	14.68	1372
10	17.62	1008	17.62	1176	17.62	1169	17.62	1246	17.62	1309
11	17.79	1036	17.79	1127	17.79	1239	17.79	1246	17.79	1316
12	17.91	980	17.91	1099	17.91	1162	17.91	1295	17.91	1323
13	14.68	1043	14.68	1141	14.68	1197	14.68	1281	14.68	1337
14	19.15	1162	19.15	1253	19.15	1330	19.15	1414	19.15	1603
15	1.01	287	1.01	301	1.01	336	1.01	357	1.01	378
16	0.82	224	0.82	266	0.82	280	0.82	280	0.82	301
17	0.49	161	0.49	189	0.49	224	0.49	203	0.49	203
18	0.87	217	0.87	238	0.87	259	0.87	280	0.87	294
19	0.42	196	0.42	161	0.42	189	0.42	203	0.42	217
20	0.41	154	0.41	175	0.41	175	0.41	196	0.41	210
21	0.48	154	0.48	168	0.48	182	0.48	203	0.48	336
22	7.10	693	7.10	721	7.10	847	7.10	847	7.10	889
23	7.57	588	7.57	658	7.57	714	7.57	756	7.57	791
24	7.85	693	7.85	763	7.85	819	7.85	896	7.85	966
25	7.76	812	7.76	882	7.76	945	7.76	1050	7.76	1106
26	8.06	679	8.06	735	8.06	812	8.06	868	8.06	1057
27	7.35	623	7.35	672	7.35	714	7.35	784	7.35	882
28	8.64	770	8.64	812	8.68	889	8.68	987	8.68	1029
29	12.07	1190	12.07	1274	12.07	1316	12.07	1372	12.07	1512
30	11.96	1344	11.96	1309	11.96	1414	11.96	1519	11.96	1617
31	11.96	1274	11.96	1309	11.96	1463	11.96	1610	11.96	1659
32	12.60	973	12.60	1099	12.60	1274	12.60	1232	12.60	1351
33	7.14	735	7.14	798	7.14	896	7.14	952	7.14	1008
34	13.61	931	13.61	980	13.61	1106	13.61	1169	13.61	1232
35	7.14	763	7.14	882	7.14	882	7.14	945	7.14	1008
36	0.35	161	0.35	161	0.35	175	0.35	189	0.35	210
37	0.49	168	0.49	175	0.49	196	0.49	217	0.49	259
38	0.42	168	0.42	182	0.42	189	0.42	210	0.42	210
39	6.00	588	6.00	630	6.00	693	6.00	742	6.00	791
40	7.14	826	7.14	805	7.14	875	7.14	952	7.14	1022

	8500		9000		9500		10000		10500	
1	12.80	1624	12.84	1596	12.84	1708	12.92	1764	12.92	2086
2	10.37	1260	10.37	1582	10.37	1386	10.37	1442	10.37	1561
3	11.61	1568	11.61	1645	11.61	1785	11.61	1771	11.61	1897
4	11.96	1617	11.96	1736	11.96	2030	11.96	1820	11.96	1904
5	12.59	1743	12.59	1722	12.59	2114	12.59	1918	12.59	2121
6	12.59	1680	12.59	1771	12.59	1890	12.59	2366	12.59	2058
7	11.96	2100	11.96	1820	11.96	1890	11.96	1946	11.96	2107
8	14.68	1407	14.68	1463	14.68	1547	14.68	1701	14.68	1932
9	14.68	1967	14.68	1589	14.68	1568	14.68	1645	14.68	1757
10	17.62	1407	17.62	1519	17.62	1582	17.62	1659	17.62	1757
11	17.79	1393	17.79	1477	17.79	1624	17.79	1673	17.79	1708
12	17.91	1407	17.91	1470	17.91	1561	17.91	1701	17.91	1743
13	14.68	1505	14.68	1540	14.68	1589	14.68	1694	14.68	1890
14	19.15	1855	19.15	1750	19.16	1813	19.16	1974	19.16	2009
15	1.01	420	1.01	462	1.01	455	1.01	469	1.01	483
16	0.82	322	0.82	329	0.82	350	0.82	364	0.82	378
17	0.49	210	0.49	210	0.49	238	0.49	259	0.49	259
18	0.87	315	0.87	336	0.87	336	0.87	364	0.87	399
19	0.42	224	0.42	224	0.42	238	0.42	252	0.42	259
20	0.41	224	0.41	231	0.41	259	0.41	252	0.41	273
21	0.48	224	0.48	224	0.48	245	0.48	259	0.48	273
22	7.10	910	7.10	973	7.10	973	7.10	1036	7.10	1106
23	7.57	973	7.57	903	7.57	959	7.57	952	7.57	1036
24	7.85	987	7.85	1113	7.85	1120	7.85	1141	7.85	1421
25	7.76	1225	7.76	1211	7.76	1344	7.76	1372	7.76	1407
26	8.06	994	8.06	1022	8.06	1092	8.06	1155	8.06	1225
27	7.35	987	7.35	924	7.35	966	7.35	1036	7.35	1078
28	8.68	1211	8.68	1183	8.68	1218	8.68	1288	8.68	1330
29	12.07	1575	12.07	2030	12.07	1827	12.07	1890	12.07	1932
30	11.96	1792	11.96	1869	11.96	1946	11.96	2338	11.96	2121
31	11.96	1729	11.96	1848	11.96	2016	11.96	2058	11.96	2135
32	12.60	1414	12.60	1484	12.60	1645	12.60	1862	12.60	1750
33	7.14	1092	7.14	1141	7.14	1148	7.14	1309	7.14	1281
34	13.61	1316	13.61	1372	13.61	1435	13.61	1540	13.61	1596
35	7.14	1085	7.14	1148	7.14	1190	7.14	1337	7.14	1302
36	0.35	217	0.35	224	0.35	238	0.35	252	0.35	266
37	0.49	210	0.49	231	0.49	252	0.49	266	0.49	287
38	0.42	252	0.42	231	0.42	252	0.42	259	0.42	273
39	6.00	819	6.00	903	6.00	1001	6.00	966	6.00	1057
40	7.14	1344	7.14	1134	7.14	1253	7.14	1309	7.14	1407

3 Calibración del porcentaje de casamiento

Anexo 4

Tasa de Casamiento: 5%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	16000	12.67	12.78	3287	20.54%
2	50	16000	10.37	10.37	897	5.61%
3	50	15870	11.56	11.68	8097	51.02%
4	50	16000	11.96	12.07	2384	14.90%
5	50	16000	12.59	12.82	5308	33.18%
6	50	16000	12.52	12.82	6058	37.86%
7	50	16000	11.96	12.24	1413	8.83%
8	50	16000	14.68	15.32	3071	19.19%
9	50	15999	14.68	15.30	3504	21.90%
10	50	15972	17.62	18.42	6301	39.45%
11	50	8000	17.79	17.79	0	0.00%
12	50	0	-	18.38	0	-
13	50	15995	14.68	15.23	9543	59.66%
14	50	15999	19.11	19.61	7090	44.32%
15	50	15926	1.01	1.08	14234	89.38%
16	50	8000	0.82	0.87	5462	68.28%
17	50	0	0.49	0.67	0	-
18	50	8000	0.87	0.94	5396	67.45%
19	50	0	0.42	0.42	0	-
20	50	0	0.41	0.41	0	-
21	50	0	0.48	0.48	0	-
22	50	16000	7.10	7.36	3226	20.16%
23	50	16000	7.44	7.63	7412	46.33%
24	50	16000	7.74	8.00	3748	23.43%
25	50	16000	7.76	7.79	2765	17.28%
26	50	16000	7.94	8.12	8681	54.26%
27	50	16000	7.35	7.59	3164	19.78%
28	50	16000	8.63	8.96	3326	20.79%
29	50	16000	12.01	12.15	3683	23.02%
30	50	16000	11.96	12.07	2546	15.91%
31	50	16000	11.96	12.07	2538	15.86%
32	50	16000	12.60	13.19	1915	11.97%
33	50	16000	7.14	7.14	3950	24.69%
34	50	15964	13.40	13.96	4436	27.79%
35	50	16000	7.14	7.22	2506	15.66%
36	50	0	0.35	0.35	0	-
37	50	0	0.49	0.49	0	-
38	50	0	0.49	0.49	0	-
39	50	16000	6.00	6.18	3815	23.84%
40	50	16000	7.14	7.14	3897	24.36%

Tasa de Casamiento: 10%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	24000	12.56	12.81	6900	28.75%
2	50	24000	10.37	10.37	1868	7.78%
3	50	23985	11.61	11.90	12522	52.21%
4	50	24000	11.96	12.07	3841	16.00%
5	50	23998	12.48	12.82	5440	22.67%
6	50	24000	12.48	12.79	12669	52.79%
7	50	24000	11.96	12.12	3730	15.54%
8	50	24000	14.68	15.36	9473	39.47%
9	50	24000	14.68	15.43	8344	34.77%
10	50	23991	17.62	18.42	10312	42.98%
11	50	8000	-	18.19	155	1.94%
12	50	8000	17.91	18.45	138	1.73%
13	50	23998	14.67	15.27	10613	44.22%
14	50	23999	19.14	19.56	10884	45.35%
15	50	23896	1.01	1.09	15753	65.92%
16	50	15971	0.82	0.87	13393	83.86%
17	50	8000	0.49	0.67	155	1.94%
18	50	15986	0.87	0.94	10931	68.38%
19	50	8000	0.42	0.59	149	1.86%
20	50	8000	0.41	0.57	157	1.96%
21	50	8000	0.48	0.66	124	1.55%
22	50	24000	7.10	7.23	4418	18.41%
23	50	24000	7.57	7.63	10966	45.69%
24	50	24000	7.85	7.92	9601	40.00%
25	50	24000	7.76	7.75	3662	15.26%
26	50	24000	8.06	8.12	9250	38.54%
27	50	24000	7.31	7.51	4519	18.83%
28	50	24000	8.63	8.83	6743	28.10%
29	50	24000	12.06	12.20	5943	24.76%
30	50	24000	11.92	12.09	4860	20.25%
31	50	24000	11.96	12.07	4941	20.59%
32	50	24000	12.60	13.07	5553	23.14%
33	50	24000	7.14	7.22	6539	27.25%
34	50	23963	13.61	13.96	11662	48.67%
35	50	24000	7.14	7.13	5905	24.60%
36	50	8000	0.35	0.48	154	1.93%
37	50	8000	0.49	0.67	120	1.50%
38	50	8000	0.42	0.59	133	1.66%
39	50	24000	6.00	6.18	4511	18.80%
40	50	24000	7.14	7.14	8863	36.93%

Tasa de Casamiento: 15%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	32000	12.72	13.08	10086	31.52%
2	35	32000	10.37	10.37	2021	6.32%
3	41	31982	11.56	12.05	6380	19.95%
4	42	32000	11.96	12.08	4982	15.57%
5	37	32000	12.47	12.82	9208	28.78%
6	43	32000	12.59	12.79	16306	50.96%
7	34	32000	11.96	12.24	5290	16.53%
8	35	32000	14.68	15.36	10555	32.98%
9	42	32000	14.68	15.23	16528	51.65%
10	31	31981	17.62	18.54	12988	40.61%
11	37	8000	17.79	18.10	0	0.00%
12	30	31958	17.91	18.98	7437	23.27%
13	37	32000	14.68	15.28	8521	26.63%
14	34	32000	19.13	19.71	8674	27.11%
15	38	31955	1.01	1.09	18111	56.68%
16	36	23932	0.82	0.87	22330	93.31%
17	34	8000	0.49	0.67	0	0.00%
18	34	23956	0.87	0.94	16483	68.81%
19	34	8000	0.42	0.59	0	0.00%
20	40	8000	0.41	0.57	0	0.00%
21	43	8000	0.48	0.66	0	0.00%
22	37	32000	7.10	7.40	5691	17.78%
23	34	32000	7.57	7.63	13940	43.56%
24	41	32000	7.74	7.91	4891	15.28%
25	41	32000	7.76	7.96	19702	61.57%
26	31	32000	8.06	8.25	12785	39.95%
27	32	32000	7.31	7.59	11025	34.45%
28	31	32000	8.64	8.83	9919	31.00%
29	38	32000	11.99	12.40	6418	20.06%
30	35	32000	11.92	12.18	7483	23.38%
31	43	32000	11.96	12.03	10135	31.67%
32	37	32000	12.60	13.06	11597	36.24%
33	32	32000	7.14	7.22	9959	31.12%
34	42	31987	13.40	13.93	7085	22.15%
35	44	32000	7.14	7.22	9877	30.87%
36	35	8000	0.35	0.48	0	0.00%
37	33	8000	0.49	0.67	0	0.00%
38	36	8000	0.42	0.59	0	0.00%
39	38	32000	6.00	6.26	5264	16.45%
40	41	32000	7.14	7.26	8678	27.12%

Tasa de Casamiento: 20%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	40000	12.59	13.13	10613	26.53%
2	50	40000	10.37	10.29	4440	11.10%
3	50	39987	11.56	12.05	9667	24.18%
4	50	40000	11.96	12.21	18974	47.44%
5	50	40000	12.50	12.75	12431	31.08%
6	50	40000	12.59	12.75	12053	30.13%
7	50	40000	11.96	12.17	8217	20.54%
8	50	40000	14.68	15.32	23750	59.38%
9	50	40000	14.68	15.32	11934	29.84%
10	50	39985	17.62	18.27	17569	43.94%
11	50	39923	-	18.54	25209	63.14%
12	50	39970	17.91	18.60	23386	58.51%
13	50	40000	14.68	15.25	16747	41.87%
14	50	40000	19.10	19.57	27307	68.27%
15	50	39951	1.01	1.09	24265	60.74%
16	50	31887	0.82	0.87	29675	93.06%
17	50	8000	0.49	0.67	6796	84.95%
18	50	31916	0.87	0.94	26157	81.96%
19	50	8000	0.42	0.59	8000	100.00%
20	50	8000	0.41	0.41	0	0.00%
21	50	8000	0.48	0.48	0	0.00%
22	50	40000	7.10	7.44	5311	13.28%
23	50	40000	7.57	7.76	13702	34.26%
24	50	40000	7.77	7.92	15135	37.84%
25	50	40000	7.76	7.92	10747	26.87%
26	50	40000	7.94	8.12	22045	55.11%
27	50	40000	7.31	7.43	19851	49.63%
28	50	40000	8.64	9.04	8124	20.31%
29	50	40000	11.76	12.20	11222	28.06%
30	50	40000	11.96	12.21	11269	28.17%
31	50	40000	11.92	12.03	10169	25.42%
32	50	40000	12.60	13.04	12381	30.95%
33	50	40000	7.14	7.26	12523	31.31%
34	50	39985	13.61	13.92	12810	32.04%
35	50	40000	7.14	7.22	12757	31.89%
36	50	8000	0.35	0.48	7999	99.99%
37	50	8000	0.49	0.67	6828	85.35%
38	50	8000	0.42	0.59	8000	100.00%
39	50	40000	6.00	6.05	9127	22.82%
40	50	40000	7.14	7.14	18111	45.28%

Tasa de Casamiento: 25%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	56000	12.56	12.75	24324	43.44%
2	50	56000	10.37	10.29	5458	9.75%
3	50	55877	11.56	11.56	4465	7.99%
4	50	56000	11.96	12.07	15095	26.96%
5	50	56000	12.55	12.82	16512	29.49%
6	50	55996	12.59	12.79	29394	52.49%
7	50	56000	11.96	12.24	12192	21.77%
8	50	56000	14.68	15.34	18345	32.76%
9	50	55999	14.68	15.43	19422	34.68%
10	50	55973	17.62	18.32	30828	55.08%
11	50	55922	17.79	18.69	19973	35.72%
12	50	55944	17.91	18.75	29670	53.04%
13	50	55996	14.67	15.27	24157	43.14%
14	50	56000	19.10	19.69	14680	26.21%
15	50	55924	1.01	1.09	36884	65.95%
16	50	39813	0.82	0.87	35725	89.73%
17	50	15996	0.49	0.67	12561	78.53%
18	50	47463	0.87	0.94	37985	80.03%
19	50	8000	0.42	0.59	8000	100.00%
20	50	8000	0.41	0.57	8000	100.00%
21	50	8000	0.48	0.66	8000	100.00%
22	50	56000	7.08	7.23	21382	38.18%
23	50	56000	7.57	7.63	25536	45.60%
24	50	56000	7.74	8.00	37175	66.38%
25	50	56000	7.76	7.87	21626	38.62%
26	50	56000	8.06	8.25	19603	35.01%
27	50	56000	7.31	7.43	13857	24.74%
28	50	56000	8.63	8.84	15297	27.32%
29	50	56000	11.87	12.22	13091	23.38%
30	50	56000	11.96	12.20	15695	28.03%
31	50	56000	11.96	12.07	15185	27.12%
32	50	55999	12.60	13.24	22343	39.90%
33	50	56000	7.14	7.22	22334	39.88%
34	50	55974	13.61	13.88	37882	67.68%
35	50	56000	7.14	7.22	23170	41.38%
36	50	8000	0.35	0.48	8000	100.00%
37	50	15996	0.49	0.67	12354	77.23%
38	50	8000	0.42	0.59	8000	100.00%
39	50	56000	6.00	6.26	10130	18.09%
40	50	56000	7.14	7.22	21906	39.12%

Tasa de Casamiento: 30%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	64000	12.56	13.07	14824	23.16%
2	50	64000	10.37	10.37	6392	9.99%
3	50	63962	11.61	11.94	26268	41.07%
4	50	64000	11.96	12.07	17306	27.04%
5	50	63991	12.48	12.82	24030	37.55%
6	50	63999	12.59	12.82	18091	28.27%
7	50	64000	11.96	12.19	20839	32.56%
8	50	64000	14.68	15.34	28630	44.73%
9	50	63997	14.68	15.28	24643	38.51%
10	50	63973	17.46	18.24	43802	68.47%
11	50	63876	17.79	18.74	27669	43.32%
12	50	63962	-	18.64	30332	47.42%
13	50	63999	14.68	15.21	39631	61.92%
14	50	63999	19.12	19.52	41088	64.20%
15	50	63931	1.01	1.09	41821	65.42%
16	50	47789	0.82	0.87	41977	87.84%
17	50	15998	0.49	0.67	12558	78.50%
18	50	47825	0.87	0.94	39566	82.73%
19	50	8000	0.42	0.59	8000	100.00%
20	50	8000	0.41	0.57	8000	100.00%
21	50	8000	0.48	0.66	8000	100.00%
22	50	64000	7.10	7.31	14189	22.17%
23	50	64000	7.57	7.63	27537	43.03%
24	50	64000	7.74	7.90	25783	40.29%
25	50	64000	7.76	7.84	35079	54.81%
26	50	64000	8.06	8.14	36432	56.93%
27	50	64000	7.31	7.43	32825	51.29%
28	50	64000	8.63	9.04	15077	23.56%
29	50	64000	11.94	11.86	24461	38.22%
30	50	64000	11.96	12.09	17533	27.40%
31	50	64000	11.92	12.11	22638	35.37%
32	50	63999	12.60	13.10	29774	46.52%
33	50	64000	7.01	7.26	23437	36.62%
34	50	63981	13.61	13.89	26796	41.88%
35	50	64000	7.14	7.22	28797	45.00%
36	50	15992	0.35	0.48	15543	97.19%
37	50	23973	0.49	0.67	20827	86.88%
38	50	8000	0.42	0.59	8000	100.00%
39	50	64000	6.00	6.26	13462	21.03%
40	50	64000	7.14	7.13	33603	52.50%

Tasa de Casamiento: 35%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	72000	12.60	13.08	30957	43.00%
2	50	72000	10.37	10.37	10976	15.24%
3	50	71958	11.61	11.50	8991	12.49%
4	50	72000	11.88	12.03	15649	21.73%
5	50	72000	12.48	12.75	25296	35.13%
6	50	72000	12.59	12.82	26530	36.85%
7	50	72000	11.96	12.06	31884	44.28%
8	50	71999	14.68	15.38	25660	35.64%
9	50	72000	14.68	15.28	21510	29.88%
10	50	71982	17.62	18.29	28601	39.73%
11	50	71894	17.79	18.41	42606	59.26%
12	50	71940	17.90	18.67	46484	64.61%
13	50	72000	14.68	15.29	40515	56.27%
14	50	71994	19.14	19.84	28941	40.20%
15	50	71893	1.01	1.09	49443	68.77%
16	50	55710	0.82	0.87	49396	88.67%
17	50	16000	0.49	0.67	12730	79.56%
18	50	63295	0.87	0.94	56168	88.74%
19	50	16000	0.42	0.59	15995	99.97%
20	50	8000	0.41	0.57	7999	99.99%
21	50	8000	0.48	0.66	8000	100.00%
22	50	72000	7.08	7.44	17414	24.19%
23	50	72000	7.57	7.63	33898	47.08%
24	50	72000	7.74	8.00	52358	72.72%
25	50	72000	7.76	7.89	15405	21.40%
26	50	72000	7.94	8.12	46520	64.61%
27	50	72000	7.35	7.59	36153	50.21%
28	50	72000	8.64	8.79	48418	67.25%
29	50	72000	12.02	12.40	28110	39.04%
30	50	72000	11.92	12.20	26294	36.52%
31	50	72000	11.96	12.11	25685	35.67%
32	50	71999	12.60	13.04	34475	47.88%
33	50	72000	7.14	7.13	41380	57.47%
34	50	71979	13.61	13.89	31690	44.03%
35	50	72000	7.14	7.13	41970	58.29%
36	50	16000	0.35	0.48	15511	96.94%
37	50	16000	0.49	0.67	12779	79.87%
38	50	16000	0.42	0.59	15994	99.96%
39	50	72000	6.00	6.13	28158	39.11%
40	50	72000	7.14	7.13	41353	57.43%

Tasa de Casamiento: 40%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	80000	12.67	12.65	30191	37.74%
2	50	80000	10.37	10.99	55768	69.71%
3	50	79984	11.61	12.05	29752	37.20%
4	50	80000	11.96	12.07	20768	25.96%
5	50	80000	12.48	12.65	36341	45.43%
6	50	80000	12.48	12.74	18264	22.83%
7	50	80000	11.96	12.12	31540	39.43%
8	50	80000	14.68	15.24	47341	59.18%
9	50	80000	14.68	15.33	41717	52.15%
10	50	79987	17.47	18.20	35195	44.00%
11	50	79974	17.79	18.63	37726	47.17%
12	50	79974	17.91	18.68	35525	44.42%
13	50	80000	14.68	15.33	62629	78.29%
14	50	80000	19.16	19.85	35248	44.06%
15	50	79958	1.01	1.09	59472	74.38%
16	50	63554	0.82	0.87	57926	91.14%
17	50	23990	0.49	0.67	17641	73.53%
18	50	71129	0.87	0.94	64918	91.27%
19	50	16000	0.42	0.59	14615	91.34%
20	50	15998	0.41	0.57	13878	86.75%
21	50	15999	0.48	0.66	15999	100.00%
22	50	80000	7.08	7.31	30241	37.80%
23	50	80000	7.57	7.63	36510	45.64%
24	50	80000	7.74	8.12	17653	22.07%
25	50	80000	7.76	7.87	48365	60.46%
26	50	80000	8.06	8.20	52058	65.07%
27	50	80000	7.31	7.43	44949	56.19%
28	50	80000	8.64	8.83	29883	37.35%
29	50	80000	12.01	12.33	29219	36.52%
30	50	80000	11.88	12.14	19985	24.98%
31	50	80000	11.96	12.23	21940	27.43%
32	50	80000	12.60	13.06	39157	48.95%
33	50	80000	7.14	7.14	34548	43.19%
34	50	79982	13.40	13.88	44093	55.13%
35	50	80000	7.14	7.13	44460	55.58%
36	50	16000	0.35	0.48	14633	91.46%
37	50	16000	0.49	0.67	12745	79.66%
38	50	16000	0.42	0.59	14559	90.99%
39	50	80000	6.00	6.13	32823	41.03%
40	50	80000	7.14	7.13	46293	57.87%

Tasa de Casamiento: 45%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	96000	12.72	12.99	61322	63.88%
2	50	96000	10.37	10.37	11496	11.98%
3	50	95990	11.57	11.77	54653	56.94%
4	50	96000	11.96	12.15	26349	27.45%
5	50	96000	12.59	12.75	33623	35.02%
6	50	96000	12.48	12.65	45020	46.90%
7	50	96000	11.96	12.11	38912	40.53%
8	50	96000	14.68	15.17	50771	52.89%
9	50	95999	14.68	15.30	52984	55.19%
10	50	95976	17.62	18.19	64261	66.96%
11	50	95957	17.79	18.40	64764	67.49%
12	50	95957	17.86	18.63	50539	52.67%
13	50	96000	14.68	15.29	42424	44.19%
14	50	96000	19.14	19.53	70978	73.94%
15	50	95960	1.01	1.09	77195	80.44%
16	50	71511	0.82	0.87	66530	93.03%
17	50	23997	0.49	0.67	17925	74.70%
18	50	71414	0.87	0.94	65879	92.25%
19	50	23978	0.42	0.59	20952	87.38%
20	50	16000	0.41	0.57	13845	86.53%
21	50	16000	0.48	0.66	14995	93.72%
22	50	96000	7.10	7.23	61408	63.97%
23	50	96000	7.57	7.51	40121	41.79%
24	50	96000	7.77	7.92	34491	35.93%
25	50	96000	7.76	7.83	62610	65.22%
26	50	96000	7.94	8.20	63126	65.76%
27	50	96000	7.35	7.43	59051	61.51%
28	50	96000	8.68	8.95	32519	33.87%
29	50	96000	11.94	12.33	36746	38.28%
30	50	96000	11.96	12.18	29478	30.71%
31	50	96000	11.96	12.23	32931	34.30%
32	50	95998	12.60	13.03	66156	68.91%
33	50	96000	7.14	7.13	59429	61.91%
34	50	95980	13.40	13.92	23855	24.85%
35	50	96000	7.14	7.13	60145	62.65%
36	50	16000	0.35	0.48	14652	91.58%
37	50	31981	0.49	0.67	25477	79.66%
38	50	23961	0.42	0.59	21001	87.65%
39	50	96000	6.00	6.26	64469	67.16%
40	50	96000	7.14	7.13	60678	63.21%

Tasa de Casamiento: 50%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	104000	12.92	13.08	42708	41.07%
2	50	104000	10.37	10.37	18065	17.37%
3	50	103959	11.61	12.05	37335	35.91%
4	50	104000	11.96	12.05	39844	38.31%
5	50	103999	12.59	12.82	41587	39.99%
6	50	103999	12.48	12.87	33297	32.02%
7	50	104000	11.92	12.05	49231	47.34%
8	50	104000	14.68	15.26	51921	49.92%
9	50	103999	14.68	15.18	74610	71.74%
10	50	103976	17.62	18.26	46996	45.20%
11	50	103941	17.75	18.83	41972	40.38%
12	50	103969	17.91	18.61	52311	50.31%
13	50	104000	14.68	15.25	59599	57.31%
14	50	103999	19.09	19.86	69192	66.53%
15	50	103962	1.01	1.09	84450	81.23%
16	50	79519	0.82	0.87	75152	94.51%
17	50	31994	0.49	0.67	24344	76.09%
18	50	79769	0.87	0.94	74866	93.85%
19	50	23998	0.42	0.59	21006	87.53%
20	50	16000	0.41	0.57	13603	85.02%
21	50	16000	0.48	0.66	15014	93.84%
22	50	104000	7.10	7.31	58457	56.21%
23	50	104000	7.57	7.63	52697	50.67%
24	50	104000	7.74	8.00	83133	79.94%
25	50	104000	7.76	7.83	68101	65.48%
26	50	104000	8.06	8.14	72268	69.49%
27	50	104000	7.35	7.43	61234	58.88%
28	50	104000	8.63	8.84	33219	31.94%
29	50	104000	11.89	12.38	57874	55.65%
30	50	104000	11.96	12.25	37217	35.79%
31	50	104000	11.96	12.00	39469	37.95%
32	50	104000	12.60	13.11	50420	48.48%
33	50	104000	7.14	7.13	65918	63.38%
34	50	103974	13.40	13.89	72938	70.15%
35	50	104000	7.14	7.13	66045	63.50%
36	50	23996	0.35	0.48	21335	88.91%
37	50	31974	0.49	0.67	24372	76.22%
38	50	23999	0.42	0.59	21357	88.99%
39	50	104000	6.00	6.05	47217	45.40%
40	50	104000	7.14	7.05	68069	65.45%

Tasa de Casamiento: 55%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	112000	12.56	12.66	67725	60.47%
2	50	112000	10.37	10.37	17998	16.07%
3	50	111986	11.61	11.77	59997	53.58%
4	50	112000	11.92	12.11	40308	35.99%
5	50	111999	12.55	12.85	38088	34.01%
6	50	111999	12.55	12.81	41298	36.87%
7	50	112000	11.96	12.15	51775	46.23%
8	50	112000	14.68	15.24	87573	78.19%
9	50	112000	14.68	15.22	87013	77.69%
10	50	111957	17.62	18.19	56497	50.46%
11	50	111919	17.79	18.57	49821	44.52%
12	50	111969	17.86	18.66	67812	60.56%
13	50	111999	14.68	15.15	76905	68.67%
14	50	111999	19.16	19.74	45002	40.18%
15	50	111961	1.01	1.08	100392	89.67%
16	50	87514	0.82	0.87	83686	95.63%
17	50	31993	0.49	0.67	22530	70.42%
18	50	87915	0.87	0.94	83419	94.89%
19	50	23998	0.42	0.59	20501	85.43%
20	50	16000	0.41	0.57	13676	85.48%
21	50	16000	0.48	0.66	14953	93.46%
22	50	112000	7.08	7.11	46013	41.08%
23	50	112000	7.57	7.63	61048	54.51%
24	50	112000	7.74	7.99	73382	65.52%
25	50	112000	7.76	7.83	74178	66.23%
26	50	112000	8.06	8.20	73784	65.88%
27	50	112000	7.31	7.43	70795	63.21%
28	50	112000	8.64	8.83	50100	44.73%
29	50	112000	11.87	12.14	60367	53.90%
30	50	112000	11.92	12.11	48072	42.92%
31	50	112000	11.96	12.00	43586	38.92%
32	50	112000	12.60	12.95	73846	65.93%
33	50	112000	7.14	7.13	72469	64.70%
34	50	111966	13.40	13.95	74814	66.82%
35	50	112000	7.14	7.13	71714	64.03%
36	50	23983	0.35	0.48	19716	82.21%
37	50	31997	0.49	0.67	22358	69.88%
38	50	23996	0.42	0.59	20519	85.51%
39	50	112000	6.00	6.26	75062	67.02%
40	50	112000	7.14	7.22	60073	53.64%

Tasa de Casamiento: 60%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	120000	12.56	13.18	60481	50.40%
2	50	120000	10.37	10.29	23858	19.88%
3	50	119983	11.56	11.77	50264	41.89%
4	50	120000	11.96	12.06	46148	38.46%
5	50	119999	12.55	12.92	43931	36.61%
6	50	120000	12.48	12.70	22829	19.02%
7	50	120000	11.92	12.05	54601	45.50%
8	50	119999	14.68	15.32	64295	53.58%
9	50	120000	14.68	15.31	69633	58.03%
10	50	119986	17.47	18.17	83001	69.18%
11	50	119953	17.79	18.51	72556	60.49%
12	50	119958	17.91	18.68	61937	51.63%
13	50	120000	14.68	15.17	82549	68.79%
14	50	120000	19.16	19.87	57264	47.72%
15	50	119971	1.01	1.09	98165	81.82%
16	50	94439	0.82	0.87	90747	96.09%
17	50	39991	0.49	0.67	31273	78.20%
18	50	95909	0.87	0.94	91837	95.75%
19	50	24000	0.42	0.59	20595	85.81%
20	50	16000	0.41	0.57	13626	85.16%
21	50	23998	0.48	0.66	20637	85.99%
22	50	120000	7.10	7.36	54584	45.49%
23	50	120000	7.57	7.63	69313	57.76%
24	50	120000	7.77	7.92	47792	39.83%
25	50	120000	7.76	7.84	78965	65.80%
26	50	120000	8.06	8.12	81770	68.14%
27	50	120000	7.35	7.43	78083	65.07%
28	50	120000	8.64	8.72	80225	66.85%
29	50	120000	11.71	12.46	39304	32.75%
30	50	120000	11.96	11.80	55326	46.11%
31	50	120000	11.96	12.15	52303	43.59%
32	50	120000	12.60	13.01	76582	63.82%
33	50	120000	7.14	7.13	78276	65.23%
34	50	119977	13.61	13.83	86504	72.10%
35	50	120000	7.14	7.13	77717	64.76%
36	50	24000	0.35	0.48	21269	88.62%
37	50	39984	0.49	0.67	29281	73.23%
38	50	24000	0.42	0.59	20477	85.32%
39	50	120000	6.00	6.13	62954	52.46%
40	50	120000	7.14	7.14	94261	78.55%

Tasa de Casamiento: 65%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	136000	12.67	12.28	88416	65.01%
2	50	136000	10.37	10.98	102008	75.01%
3	50	135961	11.61	11.90	55546	40.85%
4	50	136000	11.88	11.95	55510	40.82%
5	50	136000	12.55	12.81	52266	38.43%
6	50	135999	12.48	12.69	54176	39.84%
7	50	136000	11.92	12.17	63403	46.62%
8	50	136000	14.68	15.15	109704	80.66%
9	50	135997	14.68	15.23	90764	66.74%
10	50	135974	17.62	18.12	118723	87.31%
11	50	135947	-	18.55	98431	72.40%
12	50	135948	17.91	18.55	102268	75.23%
13	50	135999	14.68	15.23	98644	72.53%
14	50	135996	19.11	19.26	99193	72.94%
15	50	135960	1.01	1.08	122580	90.16%
16	50	103571	0.82	0.87	99075	95.66%
17	50	39992	0.49	0.67	32114	80.30%
18	50	103590	0.87	0.94	99636	96.18%
19	50	31991	0.42	0.59	27730	86.68%
20	50	23999	0.41	0.57	21325	88.86%
21	50	23999	0.48	0.66	21828	90.95%
22	50	136000	7.10	7.25	86075	63.29%
23	50	136000	7.44	7.57	85700	63.01%
24	50	136000	7.80	7.85	94631	69.58%
25	50	136000	7.76	7.87	91679	67.41%
26	50	136000	8.06	8.20	94831	69.73%
27	50	136000	7.31	7.51	110265	81.08%
28	50	136000	8.63	8.91	65315	48.03%
29	50	136000	11.76	11.93	95432	70.17%
30	50	136000	11.96	11.91	63734	46.86%
31	50	136000	11.96	11.95	63489	46.68%
32	50	136000	12.60	12.97	97422	71.63%
33	50	136000	7.14	7.22	71572	52.63%
34	50	135974	13.61	13.81	95317	70.10%
35	50	136000	7.14	7.09	68107	50.08%
36	50	24000	0.35	0.48	21407	89.20%
37	50	39987	0.49	0.67	32126	80.34%
38	50	31997	0.42	0.59	27486	85.90%
39	50	136000	6.00	5.99	77303	56.84%
40	50	136000	7.14	7.13	87948	64.67%

Tasa de Casamiento: 70%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	144000	12.92	12.78	102421	71.13%
2	50	144000	10.37	10.37	30239	21.00%
3	50	143985	11.61	11.90	59007	40.98%
4	50	144000	11.96	11.95	67466	46.85%
5	50	144000	12.52	12.62	69473	48.25%
6	50	144000	12.55	12.47	57502	39.93%
7	50	144000	11.96	11.78	75359	52.33%
8	50	144000	14.68	15.21	105763	73.45%
9	50	144000	14.68	15.27	82269	57.13%
10	50	143985	17.62	18.10	106841	74.20%
11	50	143912	17.79	18.53	84901	59.00%
12	50	143960	17.90	18.64	103069	71.60%
13	50	144000	14.68	15.17	87634	60.86%
14	50	144000	19.14	19.86	97712	67.86%
15	50	143968	1.01	1.08	128485	89.25%
16	50	111805	0.82	0.87	106286	95.06%
17	50	47973	0.49	0.67	37929	79.06%
18	50	119870	0.87	0.94	114918	95.87%
19	50	31980	0.42	0.59	27512	86.03%
20	50	23999	0.41	0.57	21335	88.90%
21	50	31483	0.48	0.66	29661	94.21%
22	50	144000	7.10	7.12	88434	61.41%
23	50	144000	7.57	7.44	128464	89.21%
24	50	144000	7.74	7.91	99479	69.08%
25	50	144000	7.76	7.74	90181	62.63%
26	50	144000	7.94	8.12	99689	69.23%
27	50	144000	7.35	7.51	116779	81.10%
28	50	144000	8.64	8.66	101512	70.49%
29	50	144000	11.89	12.22	61504	42.71%
30	50	144000	11.92	11.92	68234	47.38%
31	50	144000	11.96	12.01	72035	50.02%
32	50	144000	12.60	13.05	104252	72.40%
33	50	144000	7.14	7.02	86817	60.29%
34	50	143968	13.61	13.96	85628	59.48%
35	50	144000	7.14	7.13	93580	64.99%
36	50	24000	0.35	0.48	21433	89.30%
37	50	47983	0.49	0.67	37906	79.00%
38	50	31998	0.42	0.59	27894	87.17%
39	50	144000	6.00	6.13	82478	57.28%
40	50	144000	7.14	7.01	90450	62.81%

Tasa de Casamiento: 75%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	152000	12.92	12.96	90429	59.49%
2	50	152000	10.37	10.53	44574	29.33%
3	50	151982	11.57	11.77	79049	52.01%
4	50	152000	11.96	11.83	70509	46.39%
5	50	151997	12.47	12.68	69690	45.85%
6	50	151994	12.55	12.81	56331	37.06%
7	50	152000	11.88	12.01	69732	45.88%
8	50	152000	14.68	15.24	115010	75.66%
9	50	152000	14.68	15.21	111525	73.37%
10	50	151982	17.46	18.17	97464	64.13%
11	50	151935	17.75	18.61	103598	68.19%
12	50	151961	17.90	18.63	92659	60.98%
13	50	151992	14.68	15.08	114842	75.56%
14	50	152000	19.14	19.54	121437	79.89%
15	50	151966	1.01	1.08	136430	89.78%
16	50	119840	0.82	0.87	114027	95.15%
17	50	47992	0.49	0.67	39508	82.32%
18	50	119940	0.87	0.94	114250	95.26%
19	50	31999	0.42	0.59	27702	86.57%
20	50	24000	0.41	0.57	21340	88.92%
21	50	31998	0.48	0.66	30513	95.36%
22	50	152000	7.10	7.23	113418	74.62%
23	50	152000	7.57	7.28	143281	94.26%
24	50	152000	7.85	7.92	103468	68.07%
25	50	152000	7.76	7.63	102705	67.57%
26	50	152000	8.06	8.12	112321	73.90%
27	50	152000	7.35	7.31	135470	89.13%
28	50	152000	8.63	8.66	113985	74.99%
29	50	152000	11.99	12.38	108934	71.67%
30	50	152000	11.92	11.78	70572	46.43%
31	50	152000	11.92	11.76	70542	46.41%
32	50	152000	12.60	12.87	116992	76.97%
33	50	152000	7.14	7.05	98532	64.82%
34	50	151967	13.40	13.79	94608	62.26%
35	50	152000	7.14	7.01	98137	64.56%
36	50	31998	0.35	0.48	27346	85.46%
37	50	47990	0.49	0.67	39443	82.19%
38	50	31999	0.42	0.59	27615	86.30%
39	50	152000	6.00	5.93	134075	88.21%
40	50	152000	7.14	7.01	129064	84.91%

Tasa de Casamiento: 80%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	160000	12.56	12.66	123532	77.21%
2	50	160000	10.37	10.37	46761	29.23%
3	50	159980	11.56	11.46	54705	34.19%
4	50	160000	11.96	11.79	71437	44.65%
5	50	159999	12.59	12.63	55147	34.47%
6	50	159996	12.48	12.60	63464	39.67%
7	50	160000	11.96	11.94	79785	49.87%
8	50	160000	14.68	15.30	111078	69.42%
9	50	160000	14.68	15.28	102869	64.29%
10	50	159962	17.62	18.23	123163	77.00%
11	50	159944	17.79	18.44	125059	78.19%
12	50	159924	-	18.60	106275	66.45%
13	50	160000	14.68	15.29	99669	62.29%
14	50	160000	19.15	19.23	121031	75.64%
15	50	159972	1.01	1.08	143147	89.48%
16	50	127851	0.82	0.87	121603	95.11%
17	50	47989	0.49	0.67	40317	84.01%
18	50	135916	0.87	0.94	129243	95.09%
19	50	39925	0.42	0.59	33897	84.90%
20	50	24000	0.41	0.57	21833	90.97%
21	50	31976	0.48	0.66	29105	91.02%
22	50	160000	7.10	7.23	117625	73.52%
23	50	160000	7.57	7.28	151391	94.62%
24	50	160000	7.74	7.91	118445	74.03%
25	50	160000	7.76	7.64	112626	70.39%
26	50	160000	8.06	7.94	112652	70.41%
27	50	160000	7.31	7.19	111538	69.71%
28	50	160000	8.63	8.71	141767	88.60%
29	50	160000	11.94	12.03	120343	75.21%
30	50	160000	11.96	11.95	72899	45.56%
31	50	160000	11.96	11.91	72527	45.33%
32	50	159997	12.60	12.97	112464	70.29%
33	50	160000	7.14	7.01	105688	66.06%
34	50	159967	13.61	13.97	127091	79.45%
35	50	160000	7.14	7.05	110983	69.36%
36	50	31994	0.35	0.48	26399	82.51%
37	50	47992	0.49	0.67	39105	81.48%
38	50	39987	0.42	0.59	33959	84.93%
39	50	160000	6.00	5.93	140681	87.93%
40	50	160000	7.14	7.09	109022	68.14%

Tasa de Casamiento: 85%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	176000	12.84	13.18	103064	58.56%
2	50	176000	10.37	10.29	55875	31.75%
3	50	175982	11.56	11.78	113931	64.74%
4	50	176000	11.92	11.76	81457	46.28%
5	50	176000	12.59	12.56	68867	39.13%
6	50	176000	12.48	12.81	63349	35.99%
7	50	176000	11.96	11.83	81082	46.07%
8	50	175996	14.68	15.13	139809	79.44%
9	50	175999	14.68	15.13	108825	61.83%
10	50	175970	17.62	18.11	138669	78.80%
11	50	175953	17.79	18.56	133106	75.65%
12	50	175944	17.91	18.47	139354	79.20%
13	50	175998	14.68	15.20	113294	64.37%
14	50	176000	19.12	19.47	137314	78.02%
15	50	175968	1.01	1.08	155806	88.54%
16	50	135838	0.82	0.87	128834	94.84%
17	50	55980	0.49	0.67	47734	85.27%
18	50	135963	0.87	0.94	129064	94.93%
19	50	39984	0.42	0.59	34020	85.08%
20	50	24000	0.41	0.57	21844	91.02%
21	50	39241	0.48	0.66	37796	96.32%
22	50	176000	7.08	7.23	134482	76.41%
23	50	176000	7.57	7.44	158131	89.85%
24	50	176000	7.85	7.84	127690	72.55%
25	50	176000	7.76	7.74	137146	77.92%
26	50	176000	7.96	8.12	126137	71.67%
27	50	176000	7.31	7.31	120987	68.74%
28	50	176000	8.63	8.62	132022	75.01%
29	50	176000	11.99	12.38	130149	73.95%
30	50	176000	11.92	11.98	65780	37.38%
31	50	176000	11.88	11.82	83245	47.30%
32	50	176000	12.60	12.93	137965	78.39%
33	50	176000	7.14	7.13	123033	69.91%
34	50	175968	13.61	13.72	133265	75.73%
35	50	176000	7.14	7.13	121999	69.32%
36	50	36900	0.35	0.48	29907	81.05%
37	50	55983	0.49	0.67	47781	85.35%
38	50	39989	0.42	0.59	33965	84.94%
39	50	176000	6.00	5.93	155826	88.54%
40	50	176000	7.14	7.01	161022	91.49%

Tasa de Casamiento: 90%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	184000	12.80	12.41	151082	82.11%
2	50	184000	10.37	10.37	57622	31.32%
3	50	183966	11.56	11.62	117336	63.78%
4	50	184000	11.96	11.78	85417	46.42%
5	50	183999	12.48	12.68	71232	38.71%
6	50	183996	12.47	12.60	72168	39.22%
7	50	184000	11.96	12.01	84428	45.88%
8	50	184000	14.68	15.19	120131	65.29%
9	50	183997	14.68	15.20	105347	57.25%
10	50	183965	17.46	18.19	127402	69.25%
11	50	183929	17.79	18.41	73935	40.20%
12	50	183745	-	18.72	87452	47.59%
13	50	183998	14.68	15.19	127028	69.04%
14	50	183996	19.07	19.44	142804	77.61%
15	50	183967	1.01	1.08	162202	88.17%
16	50	143856	0.82	0.87	136154	94.65%
17	50	55991	0.49	0.67	47702	85.20%
18	50	157151	0.87	0.94	148356	94.40%
19	50	39989	0.42	0.59	33462	83.68%
20	50	24000	0.41	0.57	21902	91.26%
21	50	39288	0.48	0.66	36377	92.59%
22	50	184000	7.08	7.19	128205	69.68%
23	50	184000	7.57	7.44	167033	90.78%
24	50	184000	7.74	7.92	134494	73.09%
25	50	184000	7.76	7.66	136101	73.97%
26	50	184000	8.06	8.07	133932	72.79%
27	50	184000	7.31	7.31	129297	70.27%
28	50	184000	8.63	8.53	162863	88.51%
29	50	184000	11.87	11.88	147655	80.25%
30	50	184000	11.96	11.79	94105	51.14%
31	50	184000	11.96	12.01	90442	49.15%
32	50	184000	12.60	12.84	134888	73.31%
33	50	184000	7.14	7.05	132991	72.28%
34	50	183970	13.61	13.76	143016	77.74%
35	50	184000	7.14	6.97	132788	72.17%
36	50	36888	0.35	0.48	29843	80.90%
37	50	55993	0.49	0.67	47590	84.99%
38	50	39997	0.42	0.59	33340	83.36%
39	50	184000	6.00	6.13	122769	66.72%
40	50	184000	7.14	7.01	128819	70.01%

Tasa de Casamiento: 95%						
	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	50	192000	12.56	12.75	158761	82.69%
2	50	192000	10.37	10.37	55757	29.04%
3	50	191986	11.61	11.57	134572	70.09%
4	50	192000	11.92	12.01	108758	56.64%
5	50	192000	12.48	12.74	72861	37.95%
6	50	192000	12.59	12.71	116345	60.60%
7	50	192000	11.96	11.93	93790	48.85%
8	50	191998	14.68	15.12	165228	86.06%
9	50	192000	14.68	15.29	161429	84.08%
10	50	191965	17.62	18.25	156033	81.28%
11	50	191928	17.79	18.42	155895	81.23%
12	50	191914	17.91	18.60	154233	80.37%
13	50	192000	14.68	15.21	125827	65.53%
14	50	191999	19.16	19.23	145768	75.92%
15	50	191973	1.01	1.08	188211	98.04%
16	50	151912	0.82	0.87	143332	94.35%
17	50	55992	0.49	0.67	47652	85.11%
18	50	159956	0.87	0.94	151076	94.45%
19	50	45643	0.42	0.59	38827	85.07%
20	50	26933	0.41	0.57	24960	92.67%
21	50	39918	0.48	0.66	38590	96.67%
22	50	192000	7.08	6.85	145058	75.55%
23	50	192000	7.57	7.28	182849	95.23%
24	50	192000	7.85	7.57	153284	79.84%
25	50	192000	7.76	7.75	139062	72.43%
26	50	192000	8.06	7.79	159495	83.07%
27	50	192000	7.35	7.27	140644	73.25%
28	50	192000	8.68	8.51	165897	86.40%
29	50	192000	12.02	11.32	151487	78.90%
30	50	192000	11.96	11.95	73651	38.36%
31	50	192000	11.96	11.82	99350	51.74%
32	50	191998	12.60	12.97	149688	77.96%
33	50	192000	7.14	7.01	175815	91.57%
34	50	191958	13.61	13.84	130326	67.89%
35	50	192000	7.14	6.96	173625	90.43%
36	50	38808	0.35	0.48	30941	79.73%
37	50	55986	0.49	0.67	48896	87.34%
38	50	39996	0.42	0.59	33367	83.43%
39	50	192000	6.00	5.79	186040	96.90%
40	50	192000	7.14	6.92	176012	91.67%

4 Calibración del porcentaje de mutación

Anexo 5

Tasa de Mutación: 4%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15516	12.80	13.51	13512	87.08%
2	50	15501	10.37	10.37	1008	6.50%
3	50	15472	11.56	12.15	8922	57.67%
4	50	15506	11.96	12.09	8632	55.67%
5	50	15457	12.48	12.82	8852	57.27%
6	50	15536	12.59	12.81	9187	59.13%
7	50	15523	11.96	12.24	8481	54.64%
8	50	15512	14.68	15.40	15440	99.54%
9	50	15546	14.68	15.28	14914	95.93%
10	50	15540	17.47	18.34	13216	85.05%
11	50	15479	17.79	18.61	11229	72.54%
12	50	15514	17.91	18.66	15034	96.91%
13	50	15524	14.68	15.27	13628	87.79%
14	50	15566	19.14	19.58	11186	71.86%
15	50	15501	1.01	1.09	12969	83.67%
16	50	14836	0.82	0.87	11534	77.74%
17	50	0	0.49	0.67	0	-
18	50	14988	0.87	0.94	11769	78.52%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15524	7.10	7.44	14792	95.28%
23	50	15505	7.57	7.51	15492	99.92%
24	50	15503	7.74	8.25	14791	95.41%
25	50	15544	7.76	7.88	12314	79.22%
26	50	15552	8.06	8.12	15542	99.94%
27	50	15552	7.31	7.59	14561	93.63%
28	50	15512	8.63	9.04	14800	95.41%
29	50	15522	12.06	12.25	15515	99.95%
30	50	15510	11.96	12.10	8804	56.76%
31	50	15498	11.96	12.20	9029	58.26%
32	50	15562	12.60	13.04	15007	96.43%
33	50	15509	7.14	7.18	15174	97.84%
34	50	15492	13.40	13.93	12609	81.39%
35	50	15538	7.14	7.14	15406	99.15%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15545	6.00	6.13	14195	91.32%
40	50	15524	7.14	7.14	15489	99.77%

Tasa de Mutación: 5%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15519	12.29	12.92	15518	99.99%
2	50	15498	10.37	10.37	1002	6.47%
3	50	15462	11.56	11.52	1154	7.46%
4	50	15509	11.96	12.07	8807	56.79%
5	50	15522	12.59	12.82	8947	57.64%
6	50	15506	12.48	12.79	9078	58.55%
7	50	15506	11.96	12.17	9168	59.13%
8	50	15559	14.68	15.38	15027	96.58%
9	50	15552	14.68	15.25	13157	84.60%
10	50	15499	17.62	18.54	15023	96.93%
11	50	15525	17.79	18.61	12859	82.83%
12	50	15524	17.91	18.98	15029	96.81%
13	50	15561	14.68	15.31	15009	96.45%
14	50	15539	19.13	19.51	14233	91.60%
15	50	15462	1.01	1.09	12905	83.46%
16	50	14798	0.82	0.87	11600	78.39%
17	50	0	0.49	0.67	0	-
18	50	15200	0.87	0.94	11823	77.78%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15525	7.10	7.40	14535	93.62%
23	50	15516	7.57	7.63	15508	99.95%
24	50	15501	7.74	8.25	14920	96.25%
25	50	15512	7.76	7.76	15480	99.79%
26	50	15528	7.96	8.33	14547	93.68%
27	50	15531	7.31	7.51	15043	96.86%
28	50	15510	8.63	8.83	13679	88.19%
29	50	15556	11.64	12.10	15534	99.86%
30	50	15532	11.92	12.11	9100	58.59%
31	50	15511	11.96	12.20	9027	58.20%
32	50	15518	12.59	13.06	12283	79.15%
33	50	15521	7.14	7.13	13895	89.52%
34	50	15520	13.40	13.93	14942	96.28%
35	50	15541	7.14	7.05	15516	99.84%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15471	6.00	6.13	14239	92.04%
40	50	15545	7.14	7.14	15533	99.92%

Tasa de Mutación: 6%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15514	12.80	13.30	15496	99.88%
2	50	15518	10.37	10.37	933	6.01%
3	50	15527	11.61	11.90	9091	58.55%
4	50	15500	11.96	12.21	8797	56.75%
5	50	15497	12.55	12.82	8753	56.48%
6	50	15521	12.59	12.82	8894	57.30%
7	50	15496	11.92	12.19	9053	58.42%
8	50	15440	14.68	15.47	11209	72.60%
9	50	15568	14.68	15.21	15560	99.95%
10	50	15524	17.62	18.54	14991	96.57%
11	50	15455	17.79	18.74	14518	93.94%
12	50	15482	17.86	18.64	15471	99.93%
13	50	15497	14.68	15.42	14984	96.69%
14	50	15561	19.14	19.49	12482	80.21%
15	50	15512	1.01	1.09	12961	83.55%
16	50	14322	0.82	0.87	11204	78.23%
17	50	0	0.49	0.67	0	-
18	50	15151	0.87	0.94	12015	79.30%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15501	7.10	7.44	15249	98.37%
23	50	15524	7.57	7.63	15517	99.95%
24	50	15486	7.74	7.91	14855	95.93%
25	50	15509	7.76	7.92	14136	91.15%
26	50	15567	7.96	8.33	15029	96.54%
27	50	15499	7.35	7.51	15045	97.07%
28	50	15520	8.64	8.79	14095	90.82%
29	50	15515	12.06	12.13	12914	83.24%
30	50	15543	11.96	12.20	9173	59.02%
31	50	15537	11.92	12.15	8911	57.35%
32	50	15513	12.60	13.08	15499	99.91%
33	50	15519	7.14	7.10	14620	94.21%
34	50	15523	13.61	13.96	15167	97.71%
35	50	15467	7.14	7.14	15383	99.46%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15548	6.00	6.13	14195	91.30%
40	50	15487	7.14	7.14	12690	81.94%

Tasa de Mutación: 7%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15505	12.84	13.25	15495	99.94%
2	50	15509	10.37	10.94	9858	63.56%
3	50	15535	11.61	12.05	9286	59.77%
4	50	15513	11.96	12.03	8474	54.63%
5	50	15529	12.59	12.75	8985	57.86%
6	50	15539	12.47	12.82	8963	57.68%
7	50	15539	11.96	12.24	8596	55.32%
8	50	15544	14.68	15.26	12874	82.82%
9	50	15582	14.68	15.32	12118	77.77%
10	50	15530	17.62	18.54	15020	96.72%
11	50	15524	17.79	18.42	14597	94.03%
12	50	0	17.86	18.25	0	-
13	50	15519	14.68	15.33	13106	84.45%
14	50	15482	19.13	19.57	15457	99.84%
15	50	15561	1.01	1.09	12893	82.85%
16	50	15000	0.82	0.87	11827	78.85%
17	50	0	0.49	0.67	0	-
18	50	15163	0.87	0.94	11817	77.93%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15476	7.10	7.36	15060	97.31%
23	50	15504	7.44	7.63	15494	99.94%
24	50	15549	7.85	7.87	15536	99.92%
25	50	15516	7.76	7.87	13279	85.58%
26	50	15516	7.96	8.33	14835	95.61%
27	50	15479	7.31	7.51	15347	99.15%
28	50	15532	8.64	8.84	15507	99.84%
29	50	15508	12.06	12.82	12175	78.51%
30	50	15467	11.96	12.07	8977	58.04%
31	50	15490	11.84	12.03	8824	56.97%
32	50	15526	12.59	13.07	15519	99.95%
33	50	15492	7.14	7.13	13931	89.92%
34	50	15529	13.61	13.91	14946	96.25%
35	50	15519	7.14	7.22	14490	93.37%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15522	6.00	6.09	14702	94.72%
40	50	15539	7.14	7.26	14518	93.43%

Tasa de Mutación: 8%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15515	12.56	12.75	15492	99.85%
2	50	15517	10.37	10.37	1003	6.46%
3	50	15522	11.57	12.01	9120	58.76%
4	50	15522	11.96	12.07	9036	58.21%
5	50	15490	12.59	12.75	9137	58.99%
6	50	15525	12.59	12.75	8887	57.24%
7	50	15504	11.96	12.06	8544	55.11%
8	50	15478	14.68	15.37	13254	85.63%
9	50	15546	14.68	15.31	12015	77.29%
10	50	15550	17.47	18.23	15081	96.98%
11	50	15514	17.79	18.74	14998	96.67%
12	50	15502	17.91	18.98	15007	96.81%
13	50	15513	14.68	15.36	12745	82.16%
14	50	15522	19.16	19.56	14670	94.51%
15	50	15517	1.01	1.09	12854	82.84%
16	50	14468	0.82	0.87	11354	78.48%
17	50	0	0.49	0.67	0	-
18	50	15251	0.87	0.94	12077	79.19%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15517	7.08	7.25	14428	92.98%
23	50	15516	7.44	7.63	15512	99.97%
24	50	15568	7.74	7.91	15543	99.84%
25	50	15520	7.76	7.83	14077	90.70%
26	50	15502	8.06	8.14	13222	85.29%
27	50	15529	7.35	7.59	14420	92.86%
28	50	15519	8.63	8.84	15515	99.97%
29	50	15537	11.99	12.15	15520	99.89%
30	50	15528	11.85	12.03	8834	56.89%
31	50	15538	11.96	12.07	8827	56.81%
32	50	15486	12.60	12.98	15212	98.23%
33	50	15523	7.14	7.22	14390	92.70%
34	50	15517	13.40	14.02	15476	99.74%
35	50	15572	7.14	7.22	14547	93.42%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15537	6.00	6.05	15516	99.86%
40	50	15516	7.14	7.22	14441	93.07%

Tasa de Mutación: 9%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15560	12.56	13.18	15552	99.95%
2	50	15532	10.37	10.80	9540	61.42%
3	50	15526	11.56	12.01	9444	60.83%
4	50	15497	11.92	12.05	8995	58.04%
5	50	15513	12.48	12.82	9026	58.18%
6	50	15548	12.59	12.79	9060	58.27%
7	50	15518	11.96	12.17	8902	57.37%
8	50	15522	14.68	15.28	15019	96.76%
9	50	15491	14.68	15.33	15481	99.94%
10	50	15509	17.62	18.25	15493	99.90%
11	50	15488	17.79	18.62	11287	72.88%
12	50	15506	17.91	18.73	15071	97.19%
13	50	15521	14.68	15.42	12083	77.85%
14	50	15532	19.14	19.57	15106	97.26%
15	50	15502	1.01	1.09	12906	83.25%
16	50	14329	0.82	0.87	11141	77.75%
17	50	0	0.49	0.67	0	-
18	50	15244	0.87	0.94	12000	78.72%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15482	7.10	7.44	14576	94.15%
23	50	15514	7.57	7.63	15507	99.95%
24	50	15485	7.77	8.00	13899	89.76%
25	50	15558	7.76	7.80	15523	99.78%
26	50	15519	7.94	8.12	15166	97.73%
27	50	15523	7.31	7.50	15501	99.86%
28	50	15519	8.64	8.84	15463	99.64%
29	50	15572	12.01	12.38	15569	99.98%
30	50	15514	11.96	12.09	8635	55.66%
31	50	15510	11.96	12.07	8974	57.86%
32	50	15522	12.60	13.17	14991	96.58%
33	50	15540	7.14	7.18	14142	91.00%
34	50	15511	13.61	14.01	14626	94.29%
35	50	15506	7.14	7.22	14525	93.67%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15496	6.00	6.26	14652	94.55%
40	50	15479	7.14	7.22	11912	76.96%

Tasa de Mutación: 10%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15532	12.56	12.92	15520	99.92%
2	50	15516	10.37	10.37	970	6.25%
3	50	15504	11.56	11.94	7151	46.12%
4	50	15505	11.96	12.50	10405	67.11%
5	50	15530	12.48	12.83	8985	57.86%
6	50	15556	12.59	12.73	9036	58.09%
7	50	15518	11.89	12.09	8501	54.78%
8	50	15482	14.68	15.30	9735	62.88%
9	50	15521	14.68	15.28	12512	80.61%
10	50	15537	17.47	18.17	15050	96.87%
11	50	15530	17.79	18.55	14702	94.67%
12	50	0	17.86	18.35	0	-
13	50	15534	14.68	15.31	13491	86.85%
14	50	15519	19.11	19.69	11880	76.55%
15	50	15466	1.01	1.09	12907	83.45%
16	50	14421	0.82	0.87	11277	78.20%
17	50	0	0.49	0.67	0	-
18	50	15343	0.87	0.94	11850	77.23%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15530	7.10	7.40	14513	93.45%
23	50	15571	7.57	7.63	15557	99.91%
24	50	15527	7.74	7.92	13753	88.57%
25	50	15545	7.76	7.83	14418	92.75%
26	50	15518	8.06	8.14	14082	90.75%
27	50	15525	7.35	7.55	14754	95.03%
28	50	15515	8.63	8.84	15497	99.88%
29	50	15495	12.02	12.33	15489	99.96%
30	50	15542	11.96	12.11	8973	57.73%
31	50	15476	11.88	12.06	9081	58.68%
32	50	15532	12.60	13.02	15527	99.97%
33	50	15471	7.14	7.18	15429	99.73%
34	50	15542	13.61	13.79	15533	99.94%
35	50	15499	7.14	7.22	14484	93.45%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15487	6.00	6.18	15315	98.89%
40	50	15529	7.14	7.22	14451	93.06%

Tasa de Mutación: 11%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15526	12.56	12.67	15511	99.90%
2	50	15492	10.37	10.37	1032	6.66%
3	50	15504	11.57	12.01	9116	58.80%
4	50	15544	11.92	12.15	8536	54.92%
5	50	15537	12.46	12.75	9188	59.14%
6	50	15532	12.59	12.82	8898	57.29%
7	50	15517	11.96	12.19	9129	58.83%
8	50	15525	14.68	15.35	15013	96.70%
9	50	15507	14.68	15.37	13915	89.73%
10	50	15524	17.62	18.24	15306	98.60%
11	50	15511	17.79	18.85	15167	97.78%
12	50	15516	-	18.68	15060	97.06%
13	50	15533	14.68	15.24	15518	99.90%
14	50	15538	19.16	19.64	15075	97.02%
15	50	15526	1.01	1.08	13016	83.83%
16	50	14878	0.82	0.87	11565	77.73%
17	50	0	0.49	0.67	0	-
18	50	15123	0.87	0.94	11746	77.67%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15540	7.08	7.31	14659	94.33%
23	50	15488	7.57	7.63	15479	99.94%
24	50	15520	7.74	7.99	15428	99.41%
25	50	15511	7.76	7.84	14109	90.96%
26	50	15516	8.06	8.14	14280	92.03%
27	50	15521	7.35	7.51	15485	99.77%
28	50	15548	8.64	8.83	14525	93.42%
29	50	15535	11.89	12.40	15521	99.91%
30	50	15511	11.85	12.10	8829	56.92%
31	50	15519	11.96	12.07	9015	58.09%
32	50	15529	12.60	13.08	14981	96.47%
33	50	15479	7.14	7.05	15394	99.45%
34	50	15528	13.40	13.96	12131	78.12%
35	50	15526	7.14	7.26	14561	93.78%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15522	6.00	6.13	14311	92.20%
40	50	15549	7.14	7.26	14379	92.48%

Tasa de Mutación: 12%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15497	12.56	13.18	15474	99.85%
2	50	15527	10.37	10.37	916	5.90%
3	50	15547	11.56	11.90	9386	60.37%
4	50	15529	11.96	12.18	9067	58.39%
5	50	15553	12.47	12.82	8952	57.56%
6	50	15491	12.52	12.82	8804	56.83%
7	50	15530	11.96	12.05	9069	58.40%
8	50	15490	14.68	15.34	14929	96.38%
9	50	15508	14.68	15.37	15024	96.88%
10	50	15463	17.62	18.54	15166	98.08%
11	50	15502	17.79	18.55	13569	87.53%
12	50	15503	17.91	18.63	13912	89.74%
13	50	15491	14.68	15.41	14975	96.67%
14	50	15513	19.12	19.57	14121	91.03%
15	50	15508	1.01	1.09	12916	83.29%
16	50	12387	0.82	0.87	9657	77.96%
17	50	0	0.49	0.67	0	-
18	50	14981	0.87	0.94	11773	78.59%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15558	7.08	7.23	14068	90.42%
23	50	15532	7.44	7.63	15523	99.94%
24	50	15501	7.74	8.11	14602	94.20%
25	50	15506	7.76	7.76	14535	93.74%
26	50	15570	7.94	8.12	15563	99.96%
27	50	15496	7.35	7.59	14436	93.16%
28	50	15531	8.63	8.83	15479	99.67%
29	50	15535	11.70	12.38	15524	99.93%
30	50	15531	11.96	11.95	7120	45.84%
31	50	15474	11.92	12.09	8657	55.95%
32	50	15504	12.60	12.97	14445	93.17%
33	50	15505	7.14	7.14	15491	99.91%
34	50	15494	13.40	14.10	15290	98.68%
35	50	15501	7.14	7.22	14504	93.57%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15504	6.00	6.22	13704	88.39%
40	50	15547	7.14	7.05	15344	98.69%

Tasa de Mutación: 13%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15512	12.56	13.52	12552	80.92%
2	50	15529	10.37	10.37	987	6.36%
3	50	15479	11.56	12.15	7693	49.70%
4	50	15516	11.96	12.21	8357	53.86%
5	50	15561	12.47	12.79	9019	57.96%
6	50	15509	12.48	12.82	8932	57.59%
7	50	15519	11.92	12.05	9042	58.26%
8	50	15488	14.68	15.44	12168	78.56%
9	50	15568	14.68	15.26	15080	96.87%
10	50	15534	17.43	18.31	11355	73.10%
11	50	15513	17.79	18.52	15503	99.94%
12	50	15453	-	18.69	14956	96.78%
13	50	15569	14.68	15.29	15558	99.93%
14	50	15528	19.13	19.72	15527	99.99%
15	50	15480	1.01	1.09	13039	84.23%
16	50	14655	0.82	0.87	11505	78.51%
17	50	0	0.49	0.67	0	-
18	50	15148	0.87	0.94	11906	78.60%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15557	7.10	7.40	14611	93.92%
23	50	15507	7.57	7.63	15492	99.90%
24	50	15541	7.85	7.92	15527	99.91%
25	50	15518	7.76	7.76	15358	98.97%
26	50	15490	8.06	8.33	14893	96.15%
27	50	15519	7.35	7.59	14498	93.42%
28	50	15515	8.63	8.84	15484	99.80%
29	50	15559	12.01	12.21	15552	99.96%
30	50	15536	11.96	12.07	8906	57.32%
31	50	15500	11.89	12.03	8837	57.01%
32	50	15513	12.60	13.16	14450	93.15%
33	50	15526	7.14	7.26	14574	93.87%
34	50	15483	13.61	13.93	14910	96.30%
35	50	15554	7.14	7.26	14509	93.28%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15542	6.00	6.26	14543	93.57%
40	50	15525	7.14	7.13	13985	90.08%

Tasa de Mutación: 14%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15573	12.56	13.24	15560	99.92%
2	50	15515	10.37	10.74	8927	57.54%
3	50	15490	11.57	12.05	9152	59.08%
4	50	15490	11.92	12.08	8335	53.81%
5	50	15497	12.55	12.65	8849	57.10%
6	50	15499	12.59	12.75	8965	57.84%
7	50	15527	11.96	12.24	8507	54.79%
8	50	15497	14.68	15.30	14979	96.66%
9	50	15500	14.68	15.24	15481	99.88%
10	50	15508	17.62	18.30	10909	70.34%
11	50	15493	17.79	18.74	14908	96.22%
12	50	15541	17.91	18.56	15540	99.99%
13	50	15553	14.68	15.26	14025	90.18%
14	50	15509	19.11	19.83	15490	99.88%
15	50	15512	1.01	1.09	13017	83.92%
16	50	14524	0.82	0.87	11332	78.02%
17	50	0	0.49	0.67	0	-
18	50	15139	0.87	0.94	11929	78.80%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15502	7.08	7.40	14563	93.94%
23	50	15510	7.57	7.63	15504	99.96%
24	50	15512	7.74	7.92	10675	68.82%
25	50	15547	7.76	7.84	14113	90.78%
26	50	15557	7.96	8.12	14927	95.95%
27	50	15515	7.35	7.43	13462	86.77%
28	50	15543	8.64	8.83	15495	99.69%
29	50	15543	11.99	12.21	15532	99.93%
30	50	15534	11.96	12.20	8888	57.22%
31	50	15546	11.86	12.08	8323	53.54%
32	50	15535	12.60	13.00	14959	96.29%
33	50	15557	7.14	7.05	15504	99.66%
34	50	15542	13.40	13.91	14945	96.16%
35	50	15516	7.14	7.22	14502	93.46%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15518	6.00	6.22	13880	89.44%
40	50	15527	7.14	7.14	15507	99.87%

Tasa de Mutación: 15%						
	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	50	15533	12.56	13.12	15526	99.95%
2	50	15507	10.37	10.37	1068	6.89%
3	50	15426	11.56	11.56	1065	6.90%
4	50	15541	11.96	12.07	8917	57.38%
5	50	15519	12.48	13.18	10061	64.83%
6	50	15515	12.52	12.82	9077	58.50%
7	50	15540	11.96	12.24	8698	55.97%
8	50	15510	14.68	15.26	12493	80.55%
9	50	15509	14.68	15.37	15017	96.83%
10	50	15506	17.62	18.42	14994	96.70%
11	50	15516	17.79	18.50	15032	96.88%
12	50	15510	17.91	18.66	15505	99.97%
13	50	15501	14.68	15.27	13489	87.02%
14	50	15522	19.14	19.72	15515	99.95%
15	50	15484	1.01	1.09	12997	83.94%
16	50	14352	0.82	0.87	11246	78.36%
17	50	0	0.49	0.67	0	-
18	50	15095	0.87	0.94	11925	79.00%
19	50	0	0.42	0.59	0	-
20	50	0	0.41	0.57	0	-
21	50	0	0.48	0.66	0	-
22	50	15461	7.10	7.40	14525	93.95%
23	50	15475	7.57	7.63	15468	99.95%
24	50	15552	7.74	8.00	13932	89.58%
25	50	15540	7.76	7.80	13674	87.99%
26	50	15528	8.06	8.12	15444	99.46%
27	50	15504	7.31	7.59	14242	91.86%
28	50	15521	8.63	8.89	14660	94.45%
29	50	15539	11.95	12.36	15534	99.97%
30	50	15479	11.96	12.07	8935	57.72%
31	50	15536	11.96	12.07	8833	56.86%
32	50	15542	12.60	13.14	15526	99.90%
33	50	15506	7.14	7.09	14504	93.54%
34	50	15485	13.61	14.12	15469	99.90%
35	50	15559	7.14	7.18	15549	99.94%
36	50	0	0.35	0.48	0	-
37	50	0	0.49	0.67	0	-
38	50	0	0.42	0.59	0	-
39	50	15488	6.00	6.07	12336	79.65%
40	50	15526	7.14	7.22	14494	93.35%

5 Experimentación numérica

Anexo 6

Juego	Grasp	Genético
1	11.82	12.56
2	10.22	11.36
3	11.46	12.55
4	11.81	12.51
5	12.44	13.22
6	12.49	13.21
7	11.86	12.59
8	13.93	15.05
9	13.83	14.96
10	13.87	15.19
11	14.64	15.75
12	13.76	15.23
13	14.03	15.16
14	14.51	15.70
15	10.75	11.66
16	12.13	13.19
17	12.83	13.99
18	13.21	14.39
19	12.63	14.08
20	12.07	13.48
21	10.53	11.11
22	10.15	10.85
23	9.67	10.13
24	9.05	9.85
25	8.76	9.36
26	9.96	10.63
27	10.25	10.89
28	10.08	10.71
29	12.56	13.41
30	12.26	12.88
31	11.86	12.50
32	12.50	13.51
33	8.54	9.06
34	13.31	13.84
35	8.34	8.86
36	10.44	11.06
37	9.59	10.17
38	9.87	10.44
39	9.10	9.76
40	8.49	9.01

Anexo 7

Datos Ordenados X_i	Valores Estandarizados Z_i	Probabilidad Acumulada $S_n(x_i)$	Probabilidad Acumulada Esperada F_i	Diferencias $ S_n(x_i) - F_i $
8.34	-1.72	0.025	0.043	0.018
8.49	-1.64	0.05	0.051	0.001
8.54	-1.61	0.075	0.054	0.021
8.76	-1.49	0.1	0.068	0.032
9.05	-1.33	0.125	0.092	0.033
9.10	-1.30	0.15	0.096	0.054
9.59	-1.04	0.175	0.150	0.025
9.67	-0.99	0.2	0.160	0.040
9.87	-0.88	0.225	0.189	0.036
9.96	-0.83	0.25	0.202	0.048
10.08	-0.77	0.275	0.221	0.054
10.15	-0.73	0.3	0.232	0.068
10.22	-0.69	0.325	0.244	0.081
10.25	-0.68	0.35	0.249	0.101
10.44	-0.57	0.375	0.284	0.091
10.53	-0.52	0.4	0.300	0.100
10.75	-0.41	0.425	0.343	0.082
11.46	-0.02	0.45	0.493	0.043
11.81	0.17	0.475	0.569	0.094
11.82	0.18	0.5	0.571	0.071
11.86	0.20	0.525	0.580	0.055
11.86	0.20	0.55	0.580	0.030
12.07	0.32	0.575	0.624	0.049
12.13	0.35	0.6	0.636	0.036
12.26	0.42	0.625	0.663	0.038
12.44	0.52	0.65	0.698	0.048
12.49	0.55	0.675	0.707	0.032
12.50	0.55	0.7	0.709	0.009
12.56	0.58	0.725	0.720	0.005
12.63	0.62	0.75	0.732	0.018
12.83	0.73	0.775	0.767	0.008
13.21	0.94	0.8	0.826	0.026
13.31	0.99	0.825	0.840	0.015
13.76	1.24	0.85	0.892	0.042
13.83	1.28	0.875	0.899	0.024
13.87	1.30	0.9	0.903	0.003
13.93	1.33	0.925	0.908	0.017
14.03	1.39	0.95	0.917	0.033
14.51	1.65	0.975	0.950	0.025
14.64	1.72	1	0.957	0.043

Anexo 8

Datos Ordenados X_i	Valores Estandarizados Z_i	Probabilidad Acumulada $S_n(x_i)$	Probabilidad Acumulada Esperada F_i	Diferencias $ S_n(x_i) - F_i $
8.86	-1.70	0.025	0.044	0.019
9.01	-1.63	0.05	0.052	0.002
9.06	-1.60	0.075	0.054	0.021
9.36	-1.46	0.1	0.072	0.028
9.76	-1.26	0.125	0.103	0.022
9.85	-1.22	0.15	0.111	0.039
10.13	-1.08	0.175	0.140	0.035
10.17	-1.06	0.2	0.144	0.056
10.44	-0.93	0.225	0.176	0.049
10.63	-0.84	0.25	0.201	0.049
10.71	-0.80	0.275	0.212	0.063
10.85	-0.73	0.3	0.233	0.067
10.89	-0.71	0.325	0.239	0.086
11.06	-0.63	0.35	0.266	0.084
11.11	-0.60	0.375	0.273	0.102
11.36	-0.48	0.4	0.315	0.085
11.66	-0.34	0.425	0.368	0.057
12.50	0.07	0.45	0.530	0.080
12.51	0.08	0.475	0.532	0.057
12.55	0.10	0.5	0.540	0.040
12.56	0.10	0.525	0.541	0.016
12.59	0.12	0.55	0.547	0.003
12.88	0.26	0.575	0.603	0.028
13.19	0.41	0.6	0.660	0.060
13.21	0.42	0.625	0.663	0.038
13.22	0.43	0.65	0.665	0.015
13.41	0.52	0.675	0.698	0.023
13.48	0.55	0.7	0.710	0.010
13.51	0.57	0.725	0.715	0.010
13.84	0.73	0.75	0.767	0.017
13.99	0.80	0.775	0.789	0.014
14.08	0.85	0.8	0.801	0.001
14.39	1.00	0.825	0.841	0.016
14.96	1.28	0.85	0.899	0.049
15.05	1.32	0.875	0.907	0.032
15.16	1.37	0.9	0.915	0.015
15.19	1.39	0.925	0.917	0.008
15.23	1.41	0.95	0.920	0.030
15.70	1.64	0.975	0.949	0.026
15.75	1.66	1	0.952	0.048