



Anexo 1: Calibración del parámetro alfa del algoritmo GRASP entre rango 0.20 y 0.65.

	Alfa 0.20	Alfa 0.25	Alfa 0.30	Alfa 0.35	Alfa 0.40	Alfa 0.45	Alfa 0.50	Alfa 0.55	Alfa 0.60	Alfa 0.65
Valores de Función Fitness										
1	10.51	10.56	11.54	11.54	11.54	11.54	11.56	11.54	10.56	10.51
2	8.74	9.74	9.78	9.16	11.30	11.53	12.33	9.78	9.74	8.74
3	13.12	13.12	13.29	13.12	13.12	13.11	13.11	13.29	13.12	13.12
4	11.45	11.45	11.45	11.51	11.51	11.51	11.51	11.45	11.45	11.45
5	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82	10.82
6	11.95	11.95	11.95	12.23	11.95	11.99	11.99	11.95	11.95	11.95
7	9.19	9.19	9.19	9.19	9.19	9.19	9.98	9.19	9.19	9.19
8	8.22	8.22	8.21	8.22	9.93	11.10	11.25	8.21	8.22	8.22
9	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49
10	10.89	10.89	10.89	10.89	10.89	10.89	10.86	10.89	10.89	10.89
11	9.92	11.80	11.40	11.70	11.70	11.70	11.70	11.69	12.61	11.70
12	9.80	10.21	9.24	9.24	10.79	10.21	10.21	10.79	10.79	10.21
13	11.53	11.53	11.53	11.53	11.45	11.45	11.45	11.45	11.73	11.45
14	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.53	10.54	10.54
15	12.56	12.56	12.56	12.56	12.88	12.56	12.56	12.85	13.44	12.56
16	10.26	10.26	10.26	9.55	10.26	10.26	9.55	10.93	11.87	10.26
17	11.60	11.60	11.80	11.98	12.47	11.98	11.98	12.62	12.65	11.98
18	10.55	10.55	10.55	11.22	11.22	11.11	11.22	11.22	12.31	11.11
19	11.28	11.28	11.28	11.35	11.62	11.74	11.35	11.35	11.49	11.74
20	10.98	10.98	10.98	10.96	10.98	10.98	10.96	10.98	11.90	10.98
21	9.50	9.50	9.50	9.50	9.60	9.50	9.00	10.75	10.75	9.50
22	10.52	10.52	10.52	10.52	12.13	12.13	10.52	11.64	12.13	12.13
23	13.72	13.69	13.72	13.72	13.69	13.72	13.69	13.58	13.69	13.72
24	11.23	11.23	12.26	11.41	12.28	11.50	11.88	12.29	12.29	11.50
25	11.81	11.96	11.96	11.96	11.96	11.81	11.96	12.19	11.96	11.81
26	7.75	7.75	7.69	8.87	11.28	11.24	9.49	11.28	12.25	11.24
27	9.91	9.91	9.91	9.84	10.14	10.14	9.91	10.37	10.65	10.14
28	9.91	9.91	9.91	10.20	10.19	10.20	10.35	10.35	10.19	10.20
29	10.74	10.74	10.74	10.74	10.72	10.72	10.72	10.72	10.72	10.72
30	10.90	10.90	10.90	11.66	11.99	12.41	12.94	11.66	10.90	10.90
31	10.35	10.35	10.16	10.16	11.19	11.14	11.14	10.16	10.16	10.35
32	9.59	9.59	9.69	9.69	9.75	9.93	10.25	9.69	9.69	9.59
33	10.94	10.94	10.94	10.94	10.94	11.60	11.00	10.94	10.94	10.94
34	10.55	11.34	11.34	11.34	11.47	11.47	12.32	11.34	11.34	11.34
35	10.22	10.58	10.58	10.20	11.20	11.76	11.20	10.20	10.58	10.58
36	11.16	11.16	11.16	11.16	11.50	11.50	11.50	11.16	11.16	11.16
37	10.95	10.95	10.90	10.90	10.90	11.31	11.40	10.90	10.90	10.95
38	10.19	11.96	11.56	12.57	12.57	12.73	12.73	12.57	11.56	11.96
39	11.40	11.40	11.66	11.40	11.38	11.66	11.66	11.40	11.66	11.40
40	8.57	8.57	9.44	10.35	10.27	10.27	10.30	10.35	9.44	8.57

Anexo 2: Calibración del parámetro alfa del algoritmo GRASP entre rango 0.35 y 0.53.

	Alfa 0.35	Alfa 0.37	Alfa 0.39	Alfa 0.41	Alfa 0.43	Alfa 0.45	Alfa 0.47	Alfa 0.49	Alfa 0.51	Alfa 0.53
Valores de Función Fitness										
1	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54
2	9.74	11.30	11.30	11.30	11.30	11.53	11.53	11.30	11.30	9.74
3	13.29	13.29	13.29	13.12	13.11	13.11	13.11	13.29	13.29	13.29
4	11.51	11.51	11.51	11.51	11.51	11.80	11.80	11.51	11.51	11.51
5	10.82	10.82	10.82	10.82	10.82	10.82	10.77	10.82	10.82	10.82
6	11.95	12.23	12.23	11.95	12.23	12.23	11.99	12.23	12.23	12.46
7	9.19	9.19	9.19	9.19	9.19	9.19	9.19	9.19	9.19	9.19
8	8.22	8.29	8.22	9.93	11.10	11.10	11.25	8.22	8.29	8.22
9	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49
10	10.89	10.89	10.89	10.89	10.89	10.89	10.86	10.89	10.89	10.89
11	11.70	11.70	11.78	11.78	11.78	11.78	11.36	11.70	11.69	11.69
12	9.24	10.20	10.20	10.20	10.21	11.19	10.21	10.79	10.79	10.79
13	11.45	11.45	11.45	11.45	11.45	11.53	11.45	11.45	11.45	11.45
14	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54	10.54
15	12.56	12.56	12.60	12.88	12.56	12.56	12.60	12.85	12.60	12.88
16	9.55	9.65	9.55	9.65	10.26	10.26	10.26	10.26	10.26	10.25
17	11.98	11.98	11.98	12.57	11.98	11.98	11.98	11.98	11.98	12.62
18	11.11	11.11	11.11	11.22	11.11	11.11	11.11	11.22	11.11	11.22
19	11.35	11.35	11.35	11.35	11.35	11.35	11.74	11.62	11.28	11.62
20	10.98	10.96	10.96	10.98	10.98	10.98	10.98	10.98	10.98	10.98
21	9.50	9.50	9.50	10.75	9.60	9.60	9.50	9.50	9.00	10.75
22	10.52	10.52	10.52	11.67	12.13	12.13	12.13	11.67	10.38	11.67
23	13.72	13.72	13.72	13.69	13.72	13.72	13.69	13.69	13.72	13.58
24	11.41	11.50	11.88	12.28	11.88	11.50	11.50	12.28	11.50	12.28
25	11.96	11.96	11.96	12.19	11.81	11.96	12.19	11.96	11.96	11.96
26	8.57	9.49	9.49	11.24	11.24	11.24	11.28	11.28	11.28	11.28
27	9.91	9.91	9.84	9.91	9.91	9.91	10.14	10.19	10.19	10.14
28	9.91	10.20	10.20	10.20	10.20	10.20	10.20	10.19	10.19	10.19
29	10.72	10.74	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72
30	11.70	11.80	12.25	11.99	12.41	12.41	12.84	11.99	12.25	11.80
31	10.16	10.16	10.35	11.19	11.14	11.14	11.14	11.19	10.35	10.16
32	9.57	9.93	9.93	10.14	9.93	9.93	10.70	10.14	9.93	9.93
33	10.94	10.94	11.80	10.94	10.94	10.94	11.00	10.94	11.80	10.94
34	11.34	11.34	11.47	11.47	11.47	11.47	12.32	11.47	11.47	11.34
35	10.20	10.20	11.20	11.20	11.20	11.20	11.20	11.20	11.20	10.20
36	11.50	11.16	11.50	11.50	11.16	11.50	11.50	11.50	11.50	11.16
37	10.90	10.90	10.94	10.90	10.94	11.31	11.31	10.90	10.94	10.90
38	12.57	12.57	12.57	12.57	12.57	12.73	12.73	12.57	12.57	12.57
39	11.38	11.38	11.38	11.38	11.66	11.66	11.66	11.38	11.38	11.38
40	10.30	10.27	10.27	10.27	10.30	10.27	10.27	10.27	10.27	10.27

Anexo 3: Calibración del parámetro alfa del algoritmo GRASP entre rango 0.42 y 0.52.

	Alfa 0.42	Alfa 0.43	Alfa 0.44	Alfa 0.45	Alfa 0.46	Alfa 0.47	Alfa 0.48	Alfa 0.49	Alfa 0.50	Alfa 0.51	Alfa 0.52
Valores de Función Fitness											
1	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.54	11.56	11.54	11.54
2	11.30	11.30	11.30	11.53	11.53	11.30	12.36	11.30	12.33	11.30	11.30
3	13.11	13.11	13.11	13.11	13.11	13.11	13.12	13.29	13.11	13.29	13.11
4	11.51	11.51	11.45	11.51	11.80	11.67	11.67	11.51	11.51	11.51	11.51
5	10.82	10.82	10.82	10.82	10.77	10.77	10.77	10.82	10.82	10.82	10.82
6	11.95	11.95	11.97	11.99	11.99	11.99	11.99	12.23	11.99	12.23	11.95
7	9.19	9.19	9.19	9.19	9.19	9.19	9.98	9.19	9.98	9.19	9.19
8	11.10	11.10	11.10	11.10	11.25	11.10	11.25	8.22	11.25	8.29	11.10
9	12.49	12.35	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49	12.49
10	10.84	10.86	10.86	10.89	10.86	10.86	10.84	10.89	10.86	10.89	10.84
11	11.48	11.70	11.48	11.70	11.70	11.36	11.70	11.70	11.70	11.69	11.69
12	10.20	10.21	10.21	10.21	11.20	10.21	10.21	10.79	10.21	10.79	10.79
13	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45
14	10.54	10.54	10.53	10.54	10.53	10.54	10.54	10.54	10.54	10.54	10.54
15	12.56	12.54	12.56	12.56	12.56	12.60	12.85	12.85	12.56	12.60	12.56
16	9.65	9.65	9.57	10.26	10.26	10.26	9.65	10.26	9.55	10.26	9.55
17	12.47	11.98	12.47	11.98	11.98	11.98	11.98	11.98	11.98	11.98	11.98
18	11.22	11.11	11.11	11.11	11.11	11.11	11.11	11.22	11.22	11.11	11.22
19	11.35	11.28	11.35	11.74	11.62	11.62	11.62	11.62	11.35	11.28	11.28
20	10.98	10.98	10.98	10.98	11.30	10.98	10.98	10.98	10.96	10.98	10.98
21	9.52	9.50	9.50	9.50	9.50	9.50	9.52	9.50	9.00	9.00	9.50
22	10.81	12.13	12.13	12.13	12.13	12.13	11.64	11.67	10.52	10.38	11.67
23	13.69	13.69	13.69	13.72	13.53	13.69	13.72	13.69	13.69	13.72	13.69
24	11.50	11.88	11.88	11.50	11.50	11.50	11.50	12.28	11.88	11.50	11.50
25	11.96	11.81	11.81	11.81	11.96	12.19	11.81	11.96	11.96	11.96	11.81
26	11.24	11.24	11.24	11.24	11.28	11.28	11.28	11.28	9.49	11.28	9.49
27	9.91	9.91	9.91	10.14	10.19	10.14	10.14	10.19	9.91	10.19	9.91
28	10.20	10.20	10.20	10.20	10.20	10.20	10.19	10.19	10.35	10.19	10.35
29	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72	10.72
30	11.99	12.41	12.41	12.41	12.41	12.84	12.84	11.99	12.41	12.25	12.41
31	11.14	11.19	11.14	11.14	11.14	11.14	11.14	11.19	11.14	10.35	11.19
32	9.75	9.93	9.75	9.93	10.70	10.70	10.23	10.14	10.25	9.93	9.93
33	11.60	10.94	10.94	11.60	11.00	11.00	11.00	10.94	11.00	11.80	10.94
34	11.47	11.47	11.47	11.47	11.47	12.32	12.32	11.47	12.32	11.47	11.47
35	11.20	11.20	11.20	11.76	11.20	11.20	11.20	11.20	11.20	11.20	11.20
36	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50
37	10.94	10.94	11.31	11.31	11.31	11.31	11.40	10.90	11.40	10.94	10.94
38	12.57	12.57	12.57	12.73	12.73	12.73	12.73	12.57	12.73	12.57	12.57
39	11.38	11.66	11.66	11.66	11.66	11.66	11.66	11.38	11.66	11.38	11.66
40	10.27	10.30	10.27	10.27	10.27	10.27	10.27	10.27	10.30	10.27	10.27

Anexo 4: Calibración del parámetro alfa del algoritmo GRASP de valores 0.46 y 0.48

	Alfa 0.46	Alfa 0.48		Alfa 0.46	Alfa 0.48		Alfa 0.46	Alfa 0.48	
	Valores Función Fitness			Valores Función Fitness			Valores Función Fitness		
1	11.54	11.54	41	11.80	10.77	81	11.11	11.19	
2	11.53	11.36	42	13.11	9.98	82	10.80	10.72	
3	13.11	13.12	43	11.54	11.25	83	10.47	11.45	
4	11.80	11.67	44	11.53	10.77	84	11.99	12.05	
5	10.77	10.77	45	11.20	11.99	85	12.78	12.85	
6	11.99	11.99	46	11.98	9.98	86	10.19	10.96	
7	9.95	10.01	47	11.11	11.25	87	10.21	11.98	
8	11.25	11.25	48	11.62	11.25	88	11.11	11.20	
9	12.49	12.49	49	11.54	10.77	89	11.18	11.50	
10	10.86	10.84	50	11.53	10.77	90	11.35	11.51	
11	11.70	11.70	51	11.80	11.99	91	10.31	10.45	
12	11.02	10.87	52	10.77	9.98	92	10.73	10.73	
13	11.45	11.45	53	12.13	11.25	93	11.66	11.23	
14	10.53	10.54	54	11.11	10.77	94	11.20	11.20	
15	12.56	12.85	55	11.54	11.25	95	11.50	11.70	
16	10.92	11.16	56	11.53	10.77	96	10.72	10.72	
17	11.98	11.98	57	12.13	11.99	97	12.41	12.84	
18	11.11	11.11	58	13.53	11.98	98	11.14	11.14	
19	11.62	11.62	59	11.50	11.25	99	10.70	10.73	
20	11.30	10.98	60	11.96	12.49	100	10.19	10.25	
21	9.50	9.52	61	10.86	11.70				
22	12.13	11.64	62	11.70	10.21				
23	13.53	13.42	63	11.20	11.45				
24	11.50	11.62	64	11.98	11.54				
25	11.96	11.81	65	11.11	11.99				
26	10.14	11.28	66	10.62	9.98				
27	10.19	10.14	67	11.54	11.25				
28	10.20	10.19	68	11.53	12.49				
29	10.72	10.72	69	10.10	10.17				
30	12.41	12.84	70	11.54	11.99				
31	11.14	11.14	71	11.53	9.98				
32	10.70	10.23	72	12.11	11.25				
33	11.00	11.00	73	11.80	11.78				
34	11.47	12.32	74	10.77	11.09				
35	10.31	11.20	75	10.13	9.98				
36	11.50	11.50	76	11.53	11.25				
37	11.31	11.40	77	11.18	11.50				
38	12.73	12.73	78	11.96	11.81				
39	11.66	11.66	79	11.24	11.28				
40	10.27	10.27	80	11.04	11.04				

Anexo 5: Calibración del parámetro número de iteraciones del algoritmo GRASP entre rango 1000 y 10500.

	Iteraciones 1000		Iteraciones 1500		Iteraciones 2000		Iteraciones 2500		Iteraciones 3000	
	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo
1	11.54	16600	11.54	10900	11.54	3500	11.54	3300	11.54	2200
2	11.30	900	11.23	1300	11.23	3100	11.53	2600	11.53	3600
3	13.11	700	13.11	800	13.11	1400	13.11	1700	13.11	1900
4	11.51	800	11.51	800	11.45	1000	11.51	1300	11.51	1500
5	9.34	500	9.34	1000	9.34	1000	10.82	900	10.82	1000
6	11.99	500	11.99	600	11.99	700	11.99	1000	11.99	1100
7	9.33	600	9.33	900	9.33	1000	9.19	1000	9.19	1300
8	11.14	600	11.14	800	11.14	1000	11.25	1100	11.25	1800
9	12.35	500	12.35	600	12.35	1000	12.49	2600	12.49	2300
10	10.86	700	10.86	900	10.89	1000	10.86	1000	10.86	1200
11	11.17	600	11.20	700	11.36	900	11.31	1100	11.70	1300
12	11.19	500	11.20	700	11.20	1200	10.21	1400	10.21	2000
13	11.45	400	11.45	500	11.45	700	11.45	1200	11.45	2300
14	10.54	400	10.53	500	10.54	700	10.54	1100	10.54	1100
15	12.60	400	12.60	800	12.60	900	12.56	1100	12.60	1200
16	9.65	300	9.64	500	9.64	800	10.26	800	10.26	1200
17	11.98	600	11.98	700	11.98	800	11.98	900	11.98	1100
18	11.11	400	11.11	700	11.11	1000	11.11	1100	11.11	1200
19	11.74	700	11.74	1000	11.74	1000	11.74	1100	11.62	1200
20	10.98	400	10.98	1000	10.98	700	10.98	1800	10.98	1500
21	9.50	500	9.52	800	9.50	900	9.52	900	9.52	1200
22	11.67	400	11.67	600	12.13	900	12.13	900	12.13	1100
23	13.69	500	13.69	800	13.69	1100	13.72	1100	13.72	1600
24	11.88	600	11.88	800	11.88	1100	11.50	1600	11.50	1500
25	11.81	500	11.81	700	11.96	1500	11.81	1300	11.96	1400
26	11.27	700	11.28	900	11.28	1100	11.28	1100	11.28	1500
27	9.91	600	9.91	800	10.14	1400	10.14	1500	9.91	1300
28	10.20	500	10.56	600	10.56	900	10.35	1000	10.35	1100
29	10.72	300	10.72	400	10.72	800	10.72	800	10.72	900
30	12.25	800	12.41	900	12.41	1100	12.41	1500	12.41	2700
31	11.14	800	11.14	400	11.14	600	11.14	1000	11.14	800
32	10.90	300	10.90	500	10.70	700	10.70	700	10.70	900
33	10.94	400	10.94	500	11.60	600	10.94	700	10.94	4000
34	11.47	300	11.47	600	11.47	900	11.47	1000	11.47	800
35	11.20	400	11.59	600	11.20	800	11.59	700	11.59	900
36	11.50	400	11.50	500	11.50	700	11.50	800	11.50	1000
37	11.31	500	11.31	800	11.31	500	11.31	900	11.31	800
38	12.57	400	12.73	500	12.73	700	12.73	1000	12.73	1200
39	11.66	500	11.66	700	11.66	1000	11.66	800	11.66	1000
40	10.27	700	10.27	700	10.27	800	10.30	1100	10.27	1200

	Iteraciones 3500		Iteraciones 4000		Iteraciones 4500		Iteraciones 5000		Iteraciones 5500	
	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo
1	11.54	2800	11.54	2800	11.54	2600	11.54	3000	11.54	4300
2	11.53	4200	11.53	3100	11.53	6900	11.53	7800	11.53	3300
3	13.11	2500	13.12	2900	13.11	4000	13.11	3900	13.11	4800
4	11.51	2300	11.80	1900	11.51	1700	11.51	2700	11.51	1900
5	10.82	1200	10.82	1400	10.82	1400	10.77	1600	10.77	1600
6	11.99	1100	11.99	1200	11.99	1900	11.99	1500	11.99	1700
7	9.19	2400	9.19	1400	9.19	1500	9.19	1400	9.19	1600
8	11.25	1800	11.25	1700	11.25	1900	11.25	2600	11.25	1800
9	12.49	1900	12.49	1900	12.49	1800	12.49	7100	12.49	2600
10	10.84	1500	10.86	1800	10.86	2700	10.84	2600	10.86	4300
11	11.31	1700	11.70	2700	11.70	1800	11.48	2000	11.31	2200
12	11.19	1400	11.20	2200	11.19	2900	11.19	2000	11.20	2000
13	11.45	1900	11.45	1800	11.45	1800	11.45	1500	11.45	2400
14	10.54	1300	10.53	1500	10.53	1700	10.53	1700	10.54	2200
15	12.85	1100	12.85	1800	12.56	1800	12.85	1700	12.60	2100
16	9.65	1200	10.26	1400	10.26	1500	10.26	1700	10.26	1700
17	11.98	1300	11.98	1400	11.98	1700	12.47	2000	12.47	2100
18	11.11	1300	11.11	1600	11.11	1700	11.11	1800	11.11	2100
19	11.62	1400	11.74	1600	11.62	1700	11.62	1800	11.62	2400
20	10.98	1600	10.98	1600	10.98	1900	10.98	2100	10.98	2100
21	9.50	1400	9.52	1700	9.52	1700	9.60	2000	9.60	2200
22	12.13	1200	12.13	1500	12.13	1800	12.13	1900	12.13	2100
23	13.72	1600	13.72	1700	13.72	1800	13.69	1900	13.72	2100
24	11.50	1400	11.50	1700	11.88	2000	11.88	2100	11.88	2200
25	11.96	1600	11.81	2000	11.81	2000	11.81	2100	11.81	2500
26	11.28	1500	11.28	1700	11.28	1800	11.28	2200	11.28	2600
27	10.19	1400	10.19	1500	10.14	1800	10.14	1900	10.19	1900
28	10.20	1100	10.20	1700	10.20	1800	10.20	2100	10.20	2400
29	10.72	1000	10.72	1200	10.72	1300	10.72	1400	10.72	1500
30	12.41	1300	12.41	1100	12.41	1300	12.41	1500	12.41	1700
31	11.14	1000	11.14	1200	11.14	1200	11.14	1800	11.14	2300
32	10.70	1200	10.70	1200	10.70	1400	10.70	1600	10.70	1600
33	10.94	900	10.94	1200	10.94	1200	10.94	1400	10.94	1600
34	11.47	1100	11.47	1100	11.47	3100	11.47	1700	11.47	2000
35	11.59	1100	11.20	1300	11.59	1400	11.59	1600	11.59	1800
36	11.50	1100	11.50	1200	11.50	1400	11.50	1400	11.50	1600
37	11.31	1300	11.31	1600	11.31	1500	11.31	1700	11.31	1800
38	12.73	1400	12.73	1500	12.73	1600	12.73	1800	12.73	2100
39	11.66	1100	11.66	1200	11.66	1300	11.66	1500	11.66	1700
40	10.27	1400	10.27	1800	10.27	1700	10.27	1900	10.27	2000

	Iteraciones 6000		Iteraciones 6500		Iteraciones 7000		Iteraciones 7500		Iteraciones 8000	
	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo
1	11.54	4100	11.54	3300	11.54	4100	11.54	4500	11.54	6800
2	11.53	2500	11.53	2800	11.53	2900	11.53	2800	11.53	3100
3	13.12	2300	13.11	2600	13.11	3400	13.11	2500	13.11	3100
4	11.51	2800	11.51	2900	11.51	3400	11.80	4800	11.51	4000
5	10.77	1700	10.82	2000	10.77	2400	10.82	3000	10.77	2600
6	11.99	1700	11.99	1900	11.99	2500	11.99	2000	11.99	2300
7	9.19	1700	9.19	1800	9.19	2200	9.19	1900	9.19	2400
8	11.25	1800	11.25	2000	11.25	2500	11.25	3800	11.25	2300
9	12.49	2800	12.49	2600	12.49	2800	12.49	2800	12.49	3600
10	10.86	4300	10.86	2300	10.84	3100	10.86	3300	10.86	3200
11	11.70	2500	11.70	3700	11.48	3100	11.78	10900	11.70	2800
12	11.19	2600	11.19	2700	11.19	2700	11.19	2800	11.19	3100
13	11.45	3300	11.45	3100	11.45	2500	11.45	3600	11.45	3600
14	10.54	2900	10.54	2200	10.53	2500	10.54	2100	10.54	3100
15	12.60	2200	12.56	2400	12.85	3500	12.60	3700	12.60	3400
16	10.26	1800	9.65	2100	10.26	3300	10.26	4000	10.26	3200
17	12.67	2200	11.98	2800	12.47	2800	11.98	2700	12.47	3400
18	11.11	2300	11.11	2800	11.11	3300	11.11	2900	11.22	3100
19	11.74	2300	11.74	2600	11.62	2800	11.62	2800	11.74	2800
20	10.98	2400	10.98	2500	10.98	3100	10.98	2700	10.98	3200
21	9.50	2200	9.50	2600	9.60	2800	9.52	2700	9.60	3100
22	12.13	2900	12.13	4900	12.13	3600	12.13	3200	12.13	4500
23	13.72	2300	13.72	3300	13.69	2600	13.69	2700	13.72	2700
24	11.88	2400	12.26	2400	11.88	3200	11.50	2500	11.88	3100
25	11.81	3000	11.81	3300	11.81	2900	11.96	3100	11.81	3500
26	11.28	4000	11.28	4000	11.28	3100	11.28	3600	11.28	4400
27	10.19	2400	9.91	2200	10.14	3100	10.19	2500	10.19	3800
28	10.20	3200	10.56	2500	10.20	3000	10.20	2400	10.20	2600
29	10.72	1900	10.72	1800	10.72	2100	10.72	2000	10.72	2400
30	12.41	2200	12.41	2200	12.41	2200	12.41	2300	12.41	2300
31	11.14	2300	11.14	1900	11.14	2600	11.14	2800	11.14	2200
32	10.70	1800	10.90	1700	10.70	2200	10.70	2100	10.70	2300
33	10.94	2100	10.94	2000	10.94	2200	10.94	2000	10.94	2200
34	11.47	2200	11.47	2200	11.47	2400	11.47	2000	11.47	2900
35	11.20	2100	11.59	2200	11.59	2700	11.59	2000	11.59	2600
36	11.50	1900	11.50	1900	11.50	2000	11.50	1900	11.50	2500
37	11.31	2100	11.31	2000	11.31	2300	11.31	2000	11.31	2600
38	12.73	2000	12.73	2400	12.73	2200	12.73	2500	12.73	2600
39	11.66	1800	11.66	1900	11.66	3000	11.66	3000	11.66	4200
40	10.27	2400	10.27	2400	10.27	3000	10.27	2900	10.30	3600

	Iteraciones 8500		Iteraciones 9000		Iteraciones 9500		Iteraciones 10000		Iteraciones 10500	
	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo	Fitness	Tiempo
1	11.54	5500	11.54	3900	11.54	5500	11.54	4400	11.54	4500
2	11.53	3500	11.53	5400	11.53	3700	11.53	3900	11.53	4100
3	13.11	2800	13.11	3200	13.11	3700	13.11	4000	13.12	3500
4	11.51	5700	11.51	5200	11.80	5200	11.80	5300	11.80	5600
5	10.82	2500	10.77	2600	10.82	3100	10.82	3400	10.82	3300
6	11.99	2300	11.99	2400	11.99	2800	11.99	3600	11.99	3800
7	9.19	2300	9.19	2500	9.19	2700	9.19	3000	9.19	2800
8	11.25	2400	11.25	2400	11.25	2900	11.25	3200	11.25	2800
9	12.49	3500	12.49	3800	12.49	3800	12.49	4400	12.49	3900
10	10.86	3300	10.84	3200	10.86	3400	10.86	3800	10.86	3400
11	11.70	2900	11.48	3600	11.78	3500	11.70	4000	11.70	3600
12	11.19	3300	11.19	3300	11.19	3500	11.19	4000	10.21	3500
13	11.45	2900	11.45	3000	11.45	3200	11.45	3500	11.45	3400
14	10.54	2700	10.53	3000	10.54	3100	10.53	3300	10.53	3100
15	12.56	3300	12.85	5700	12.60	3300	12.56	3700	12.60	3900
16	9.65	4200	10.26	3500	10.26	4900	10.26	3700	10.26	3900
17	11.98	3300	12.47	3300	11.98	3600	12.47	3900	11.98	3800
18	11.11	3300	11.11	3800	11.11	4200	11.11	4600	11.11	4500
19	11.74	4200	11.62	5000	11.62	3400	11.74	4300	11.74	5200
20	10.98	3800	10.98	4300	10.98	4000	10.98	4500	10.98	5700
21	9.60	3000	9.60	3300	9.52	4100	9.52	3700	9.52	4000
22	12.13	3600	12.13	3800	12.13	6200	12.13	4900	12.18	5000
23	13.72	3100	13.69	3800	13.69	5000	13.69	4600	13.72	5200
24	12.26	3100	11.88	3600	11.50	3700	11.50	4100	11.88	5100
25	11.81	3200	11.81	4400	11.96	4000	11.81	4100	11.81	4800
26	11.28	5800	11.28	4700	11.28	5000	11.28	4300	11.28	5200
27	9.91	3800	10.14	8400	10.19	4400	9.91	3900	10.19	4600
28	10.56	3200	10.20	2700	10.20	2900	10.20	3800	10.35	2900
29	10.72	2600	10.72	2700	10.72	2500	10.72	4000	10.72	3000
30	12.41	2400	12.41	2500	12.41	2700	12.41	3100	12.41	2900
31	11.14	2500	11.14	3000	11.14	2700	11.14	3100	11.14	2800
32	10.90	2400	10.70	2800	10.70	3100	10.70	3600	10.70	3100
33	10.94	2400	10.94	2400	10.94	2900	11.60	2800	11.60	2700
34	11.47	3000	11.47	2500	11.47	2700	11.47	3300	11.47	2700
35	11.59	2700	11.59	2700	11.59	3400	11.59	3000	11.76	3000
36	11.50	3000	11.50	3300	11.50	3100	11.50	3200	11.50	3000
37	11.31	2500	11.31	2900	11.31	2700	11.31	3100	11.31	3000
38	12.73	2500	12.73	2800	12.73	2900	12.73	3000	12.73	3000
39	11.66	4300	11.66	3500	11.66	3700	11.66	4200	11.66	4000
40	10.27	3700	10.27	5600	10.27	5200	10.27	3700	10.27	5700

Anexo 6: Calibración de la tasa de casamiento del algoritmo Genético entre rango 0.05 y 0.95.

Tasa de Casamiento: 5%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	44	17600	11.54	11.99	8000	45.45%
2	35	14000	11.53	12.22	4920	35.14%
3	43	17200	13.29	14.44	8000	46.51%
4	42	16800	11.51	12.40	5251	31.25%
5	37	14800	10.82	12.50	4854	32.79%
6	33	13200	11.99	12.46	5410	40.98%
7	33	13200	9.19	10.26	5410	40.98%
8	33	13200	11.25	11.92	5410	40.98%
9	30	12000	12.49	13.10	4238	35.31%
10	35	14000	10.86	11.90	4920	35.14%
11	41	16400	11.70	11.78	5251	32.10%
12	43	17200	11.19	11.68	5251	30.52%
13	40	16000	11.45	12.30	8000	50.00%
14	37	14800	10.54	11.64	4854	32.79%
15	37	14800	12.60	12.85	4854	32.79%
16	31	12400	9.65	11.69	4600	37.09%
17	42	16800	12.47	13.38	8000	47.61%
18	33	13200	11.11	11.31	5410	40.98%
19	33	13200	11.35	12.50	5410	40.98%
20	39	15600	10.98	12.12	4967	31.83%
21	41	16400	9.52	11.70	5696	34.73%
22	41	16400	12.13	12.41	5251	32.10%
23	33	13200	13.72	14.20	5410	40.98%
24	42	16800	11.88	12.88	5251	31.25%
25	31	12400	11.81	12.51	4600	37.09%
26	31	12400	11.28	12.43	4600	37.09%
27	42	16800	10.14	11.23	8000	47.61%
28	36	14400	10.35	11.49	4876	33.86%
29	39	15600	10.72	11.32	4967	31.83%
30	36	14400	12.41	13.12	4876	33.86%
31	38	15200	11.14	12.75	5790	38.09%
32	40	16000	10.90	11.20	6725	42.30%
33	35	14000	10.94	11.80	4920	35.14%
34	32	12800	11.47	13.32	5288	41.31%
35	41	16400	11.20	12.40	8000	48.78%
36	33	13200	11.50	12.18	5410	40.98%
37	34	13600	11.31	12.71	5764	42.38%
38	40	16000	12.73	14.23	8000	50.00%
39	32	12800	11.66	12.47	5288	41.31%
40	38	15200	10.27	10.35	5790	38.09%

Tasa de Casamiento: 10%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	30	24000	11.54	11.74	5767	24.20%
2	33	26400	11.30	12.22	8000	30.30%
3	35	28000	13.12	14.45	8000	28.57%
4	44	35200	11.80	12.40	15492	44.10%
5	31	24800	10.82	12.50	6796	27.40%
6	43	34400	11.99	13.87	16000	46.51%
7	34	27200	9.19	11.17	5477	20.13%
8	31	24800	11.25	11.41	8000	32.25%
9	43	34400	12.49	12.94	16000	46.51%
10	37	29600	10.86	12.13	6289	21.24%
11	42	33600	11.48	11.78	10502	31.25%
12	41	32800	11.19	11.68	10884	33.18%
13	35	28000	11.45	12.30	8000	28.57%
14	40	32000	10.54	11.64	16000	50.00%
15	38	30400	12.56	12.85	5251	17.27%
16	43	34400	9.65	11.69	16000	46.51%
17	32	25600	12.47	13.28	5416	21.15%
18	31	24800	11.11	11.31	5251	21.17%
19	40	32000	11.74	12.50	15282	47.75%
20	35	28000	10.98	12.10	6225	22.23%
21	31	24800	9.50	11.21	8000	32.25%
22	38	30400	12.13	12.25	8000	26.31%
23	43	34400	13.69	14.20	16000	46.51%
24	37	29600	11.88	12.88	8000	27.20%
25	35	28000	11.96	12.51	7192	25.68%
26	35	28000	11.28	12.43	8000	28.57%
27	38	30400	10.14	10.45	8000	26.31%
28	33	26400	10.20	11.33	5766	21.84%
29	32	25600	10.72	11.32	7839	30.62%
30	44	35200	12.41	13.12	16000	45.45%
31	40	32000	11.14	12.75	16000	50.00%
32	36	28800	10.70	11.20	8000	27.77%
33	42	33600	10.94	11.96	16000	47.61%
34	38	30400	11.47	13.32	8000	26.31%
35	36	28800	11.20	12.18	8000	27.77%
36	36	28800	11.50	12.18	8000	27.77%
37	31	24800	11.31	12.71	8000	32.25%
38	41	32800	12.73	14.34	13684	41.71%
39	31	24800	11.66	12.89	5578	22.49%
40	37	29600	10.27	10.41	8000	27.20%

Tasa de Casamiento: 15%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	42000	11.54	12.35	13092	31.17%
2	35	42000	11.53	12.82	16000	38.90%
3	41	49199	13.11	14.23	16542	33.62%
4	42	50400	11.80	12.26	22737	45.11%
5	37	44400	10.82	12.30	16000	36.30%
6	43	51600	11.99	14.19	24000	46.51%
7	34	40800	9.19	11.65	12072	29.58%
8	35	42000	11.25	11.88	16000	38.90%
9	42	50400	12.49	13.43	21819	43.29%
10	31	37199	10.86	11.68	14110	37.93%
11	37	44400	11.48	11.78	10502	23.65%
12	30	36000	10.21	11.22	15000	41.66%
13	37	44400	11.45	12.22	16000	36.30%
14	34	40800	10.54	11.38	16000	39.21%
15	38	45600	12.60	13.41	16000	35.80%
16	36	43199	10.26	11.36	14888	34.46%
17	34	40800	11.98	13.70	16000	39.21%
18	34	40800	11.11	11.56	16000	39.21%
19	34	40800	11.74	12.50	16000	39.21%
20	40	48000	10.98	11.90	24000	50.00%
21	43	51600	9.60	11.96	15987	30.98%
22	37	44400	12.13	12.96	16000	36.30%
23	34	40800	13.72	14.30	16000	39.21%
24	41	49199	11.88	13.20	19104	38.83%
25	41	49199	11.81	13.90	24000	48.78%
26	31	37199	11.28	11.75	12560	33.76%
27	32	38400	9.91	10.19	10502	27.34%
28	31	37199	10.20	10.98	16000	43.10%
29	38	45600	10.72	11.32	16000	35.80%
30	35	42000	12.41	13.37	16000	38.90%
31	43	51600	11.14	12.60	22365	43.34%
32	37	44400	10.70	11.90	10594	23.86%
33	32	38400	10.94	11.84	16000	41.66%
34	42	50400	11.47	13.75	16605	32.94%
35	44	52800	11.20	12.33	24000	45.45%
36	35	42000	11.50	12.17	14084	33.53%
37	33	39600	11.31	13.26	16000	40.40%
38	36	43199	12.73	14.30	16000	37.30%
39	38	45600	11.66	13.30	16000	35.80%
40	41	49199	10.27	10.63	17052	34.65%

Tasa de Casamiento: 20%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	39	62400	11.54	12.28	24000	38.46%
2	38	60800	11.53	12.44	24000	39.47%
3	34	54400	13.12	14.45	17424	32.20%
4	44	70400	11.45	12.13	21068	29.92%
5	35	56000	10.77	11.64	21192	37.84%
6	31	49600	11.99	14.50	24000	48.38%
7	44	70400	9.19	11.14	24488	34.78%
8	43	68800	11.25	11.39	21004	30.52%
9	42	67200	12.49	13.10	24504	36.46%
10	44	70400	10.89	11.77	32000	45.45%
11	38	60800	11.36	11.48	15753	25.90%
12	38	60800	11.19	11.70	21237	34.92%
13	41	65600	11.45	12.30	32000	48.78%
14	42	67200	10.54	11.53	32000	47.61%
15	38	60800	12.56	13.88	24000	39.47%
16	30	48000	10.26	11.47	22281	46.41%
17	41	65600	12.47	13.60	30820	46.98%
18	33	52800	11.22	11.74	21987	41.64%
19	39	62400	11.62	12.22	16548	26.51%
20	39	62400	10.98	12.26	16176	25.92%
21	44	70400	9.52	11.60	26952	38.28%
22	40	64000	12.13	12.58	32000	50.00%
23	32	51200	13.72	14.39	24000	46.87%
24	36	57600	12.26	13.20	24000	41.66%
25	34	54400	11.96	13.51	23472	43.14%
26	32	51200	11.28	12.37	24000	46.87%
27	31	49600	10.14	10.88	24000	48.38%
28	35	56000	10.20	10.71	24000	42.85%
29	34	54400	10.72	11.76	23109	42.47%
30	36	57600	12.41	12.99	16068	27.89%
31	32	51200	11.14	12.92	24000	46.87%
32	42	67200	10.70	11.51	22856	34.10%
33	39	62400	10.94	12.31	24000	38.46%
34	31	49600	11.47	14.00	24000	48.38%
35	32	51200	11.20	12.55	24000	46.87%
36	31	49600	11.50	11.64	24000	48.38%
37	40	64000	11.31	13.52	32000	50.00%
38	44	70400	12.73	13.61	30476	43.28%
39	40	64000	11.66	12.86	32000	50.00%
40	40	64000	10.30	10.59	32000	50.00%

Tasa de Casamiento: 25%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	70000	11.54	12.46	21144	30.20%
2	30	60000	11.53	12.17	24000	40.00%
3	33	66000	13.11	14.44	26988	40.89%
4	38	76000	11.51	12.24	25172	33.12%
5	36	72000	10.82	12.20	28944	40.20%
6	41	82000	11.99	14.52	37090	45.23%
7	35	70000	9.19	11.43	32000	45.71%
8	35	70000	11.25	11.39	21004	30.00%
9	33	66000	12.49	13.10	32000	48.48%
10	30	60000	10.86	11.73	23355	38.92%
11	41	82000	11.36	11.70	26255	32.10%
12	42	84000	11.19	11.64	40000	47.61%
13	44	88000	11.45	12.31	35120	39.90%
14	37	74000	10.54	11.95	32000	43.24%
15	35	70000	12.56	14.42	32000	45.71%
16	38	76000	10.26	11.23	27092	35.64%
17	37	74000	11.98	13.66	32000	43.24%
18	38	76000	11.11	11.36	32000	42.10%
19	35	70000	11.74	12.29	22700	32.42%
20	43	86000	10.98	12.10	27960	32.51%
21	34	68000	9.50	11.44	32000	47.50%
22	40	80000	12.13	12.31	28995	36.24%
23	36	72000	13.72	14.35	24884	34.56%
24	37	74000	11.88	12.66	32000	43.24%
25	42	84000	11.81	12.84	34450	41.10%
26	33	66000	11.28	12.34	32000	48.48%
27	36	72000	10.14	10.65	32000	44.44%
28	38	76000	10.56	10.97	31316	41.20%
29	37	74000	10.72	11.21	23104	31.22%
30	42	84000	12.41	13.81	40000	47.61%
31	34	68000	11.14	12.97	32000	47.50%
32	31	62000	10.70	11.13	24000	38.70%
33	42	84000	10.94	11.84	40000	47.61%
34	43	86000	11.47	14.00	28065	32.63%
35	39	78000	11.59	12.31	32000	41.20%
36	40	80000	11.50	12.10	34420	43.20%
37	38	76000	11.31	13.18	32000	42.10%
38	36	72000	12.73	13.21	21004	29.17%
39	44	88000	11.66	12.47	26255	29.83%
40	38	76000	10.27	10.35	21004	27.63%

Tasa de Casamiento: 30%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	40	96000	11.54	12.13	45162	47.40%
2	39	93600	11.53	13.17	29830	31.86%
3	38	91200	13.11	14.45	26685	29.25%
4	37	88800	11.80	12.79	36675	41.30%
5	43	103200	10.82	11.65	44694	43.30%
6	43	103200	11.99	14.23	38778	37.57%
7	38	91200	9.19	11.31	40000	43.85%
8	42	100800	11.25	11.39	31506	31.25%
9	42	100800	12.49	13.43	40404	40.80%
10	38	91200	10.86	11.68	29305	32.13%
11	37	88800	11.70	11.78	26255	29.56%
12	44	105600	11.20	11.69	42708	40.44%
13	33	79200	11.45	12.50	28616	36.13%
14	31	74399	10.54	11.84	32000	43.10%
15	38	91200	12.60	14.90	40000	43.85%
16	44	105600	10.26	11.79	42864	40.59%
17	30	72000	11.98	14.20	32000	44.44%
18	37	88800	11.11	12.29	40000	45.40%
19	30	72000	11.62	12.50	32000	44.44%
20	30	72000	10.98	12.10	32000	44.44%
21	36	86399	9.50	11.42	40000	46.29%
22	44	105600	12.13	12.13	31506	29.83%
23	33	79200	13.72	14.29	23584	29.77%
24	44	105600	11.50	13.20	42600	40.34%
25	42	100800	11.81	13.50	43548	43.20%
26	41	98399	11.28	11.35	36372	36.96%
27	32	76800	10.19	11.11	32000	41.66%
28	44	105600	10.35	11.33	39126	37.50%
29	31	74399	10.72	11.33	32000	43.10%
30	40	96000	12.41	13.32	41550	43.28%
31	37	88800	11.14	13.19	40000	45.40%
32	38	91200	10.70	11.40	29415	32.25%
33	35	84000	11.60	11.89	36100	42.97%
34	30	72000	11.47	14.21	32000	44.44%
35	31	74399	11.20	12.79	32000	43.10%
36	31	74399	11.50	11.87	25076	33.70%
37	44	105600	11.31	13.18	42054	39.82%
38	43	103200	12.73	14.24	41430	40.14%
39	37	88800	11.66	12.47	26255	29.56%
40	38	91200	10.27	10.89	40000	43.85%

Tasa de Casamiento: 35%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	30	84000	11.54	12.35	29765	35.43%
2	36	100800	11.53	12.73	46530	46.16%
3	33	92399	13.11	14.65	40000	43.29%
4	30	84000	11.45	12.10	37760	44.95%
5	39	109199	10.77	11.76	44736	40.96%
6	41	114800	11.99	14.14	38150	33.23%
7	35	98000	9.33	11.47	39840	40.65%
8	43	120399	11.25	11.86	40831	33.91%
9	35	98000	12.49	13.73	45102	46.20%
10	34	95199	10.84	11.68	26275	27.60%
11	42	117600	11.31	11.70	36757	31.25%
12	30	84000	10.21	11.65	40000	47.61%
13	31	86800	11.45	12.30	30910	35.61%
14	40	112000	10.54	11.73	37730	33.68%
15	41	114800	12.56	13.92	42105	36.67%
16	36	100800	10.26	11.72	39924	39.60%
17	33	92399	11.98	13.96	27325	29.57%
18	37	103600	11.11	11.66	41982	40.52%
19	33	92399	11.74	12.80	28445	30.78%
20	39	109199	10.98	11.90	35478	32.48%
21	42	117600	9.50	11.70	39305	33.42%
22	42	117600	12.13	12.13	36757	31.25%
23	40	112000	13.53	14.20	38927	34.75%
24	42	117600	11.50	13.20	42896	36.47%
25	41	114800	11.81	12.80	43176	37.60%
26	41	114800	11.28	11.84	40439	35.22%
27	35	98000	10.19	10.99	41514	42.36%
28	42	117600	10.20	11.27	39067	33.22%
29	31	86800	10.72	11.58	40000	46.80%
30	42	117600	12.41	13.71	39753	33.80%
31	44	123199	11.14	12.52	39795	32.30%
32	37	103600	10.90	11.91	34608	33.40%
33	39	109199	10.94	12.30	40968	37.51%
34	32	89600	11.47	14.10	40000	44.64%
35	44	123199	11.59	12.65	38780	31.47%
36	40	112000	11.50	12.20	40278	35.96%
37	37	103600	11.31	13.34	41238	39.80%
38	39	109199	12.73	13.30	41142	37.67%
39	39	109199	11.66	12.47	31506	28.85%
40	41	114800	10.27	10.88	36876	32.12%

Tasa de Casamiento: 40%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	112000	11.54	12.91	44863	40.50%
2	32	102400	11.53	12.33	33648	32.85%
3	39	124800	13.11	14.44	43365	34.74%
4	35	112000	11.80	12.80	37821	33.76%
5	34	108800	10.82	12.30	44370	40.78%
6	35	112000	11.99	14.22	37401	33.39%
7	44	140800	9.19	11.20	38088	27.50%
8	40	128000	11.25	11.79	40448	31.60%
9	30	96000	12.49	13.41	35304	36.77%
10	36	115200	10.86	12.33	39067	33.91%
11	44	140800	11.36	11.78	42008	29.83%
12	41	131200	10.21	11.58	41224	31.42%
13	40	128000	11.45	12.31	41512	32.43%
14	38	121600	10.54	11.91	38682	31.81%
15	38	121600	12.60	13.36	41489	34.11%
16	36	115200	9.65	11.74	40894	35.49%
17	37	118400	11.98	13.90	38346	32.38%
18	43	137600	11.11	12.27	39944	29.20%
19	33	105600	11.62	12.50	31512	29.84%
20	40	128000	10.98	11.90	40784	31.86%
21	36	115200	9.52	11.46	39263	34.80%
22	43	137600	12.13	12.35	38960	28.31%
23	36	115200	13.69	14.29	41636	36.14%
24	31	99200	11.88	13.60	33684	33.95%
25	40	128000	12.19	13.30	42936	33.54%
26	39	124800	11.28	12.84	38843	31.12%
27	30	96000	10.14	10.78	41730	43.46%
28	33	105600	10.20	11.18	41802	39.58%
29	43	137600	10.72	11.76	42264	30.71%
30	35	112000	12.41	14.14	40873	36.49%
31	43	137600	11.14	13.34	39600	28.77%
32	36	115200	10.70	11.36	41027	35.61%
33	37	118400	10.94	11.71	39326	33.21%
34	32	102400	11.47	14.25	39462	38.53%
35	38	121600	11.76	12.38	38010	31.25%
36	32	102400	11.50	12.21	41922	40.93%
37	39	124800	11.31	13.70	39529	31.67%
38	32	102400	12.73	13.96	41202	40.23%
39	39	124800	11.66	12.85	41986	33.64%
40	43	137600	10.27	10.58	41824	30.39%

Tasa de Casamiento: 45%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	30	108000	11.54	12.35	34848	32.26%
2	42	151200	11.53	13.37	42084	27.83%
3	37	133200	13.11	14.59	43880	32.94%
4	30	108000	11.80	12.21	43308	40.10%
5	40	144000	10.77	12.40	41436	28.77%
6	34	122400	11.99	14.19	39018	31.87%
7	36	129600	9.33	11.44	37624	29.30%
8	36	129600	11.25	11.54	41056	31.67%
9	33	118800	12.49	13.43	37688	31.72%
10	34	122400	10.84	12.33	39711	32.44%
11	42	151200	11.48	11.78	41787	27.63%
12	34	122400	10.21	11.70	43421	35.47%
13	34	122400	11.45	12.34	42140	34.42%
14	35	126000	10.54	11.38	38647	30.67%
15	35	126000	12.60	14.52	41447	32.89%
16	39	140400	9.65	11.79	40232	28.65%
17	43	154800	11.98	13.73	35685	23.50%
18	43	154800	11.11	11.35	39114	25.26%
19	32	115200	11.62	12.35	43687	37.92%
20	41	147600	10.98	11.44	42057	28.49%
21	38	136800	9.50	11.62	38280	27.98%
22	35	126000	12.13	12.34	41342	32.81%
23	35	126000	13.69	14.46	42693	33.88%
24	39	140400	11.50	13.33	41224	29.36%
25	30	108000	11.81	13.42	44580	41.27%
26	30	108000	11.28	12.14	41568	38.48%
27	36	129600	9.91	10.51	38848	29.97%
28	30	108000	10.20	10.76	35466	32.83%
29	37	133200	10.72	11.53	41536	31.18%
30	31	111600	12.41	13.20	42882	38.42%
31	34	122400	11.14	12.87	41594	33.98%
32	34	122400	10.70	11.46	40845	33.37%
33	43	154800	11.60	11.94	37629	24.30%
34	33	118800	11.47	14.30	38885	32.73%
35	31	111600	11.20	13.47	38052	34.90%
36	33	118800	11.50	12.25	40404	34.10%
37	41	147600	11.31	13.54	38529	26.10%
38	43	154800	12.73	13.98	38808	25.60%
39	36	129600	11.66	13.17	40896	31.55%
40	40	144000	10.27	10.54	41004	28.47%

Tasa de Casamiento: 50%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	30	120000	11.54	12.39	56000	46.66%
2	37	148000	11.53	12.62	72000	48.64%
3	38	152000	13.11	14.67	72000	47.36%
4	40	160000	11.51	12.51	80000	50.00%
5	34	136000	10.82	12.20	64000	47.50%
6	42	168000	11.99	14.28	72670	43.25%
7	35	140000	9.19	11.36	64000	45.71%
8	43	172000	11.25	11.54	77100	44.82%
9	36	144000	12.49	13.68	72000	50.00%
10	32	128000	10.86	12.33	64000	50.00%
11	40	160000	11.36	12.13	80000	50.00%
12	31	124000	11.19	11.68	56000	45.16%
13	30	120000	11.45	12.70	56000	46.66%
14	37	148000	10.54	12.20	72000	48.64%
15	40	160000	12.60	14.27	80000	50.00%
16	44	176000	10.26	11.54	76054	43.21%
17	32	128000	11.98	14.20	64000	50.00%
18	43	172000	11.11	11.75	78030	45.36%
19	37	148000	11.74	12.50	72000	48.64%
20	39	156000	10.98	11.90	72000	46.15%
21	30	120000	9.50	12.11	56000	46.66%
22	37	148000	12.13	13.12	72000	48.64%
23	30	120000	13.69	14.46	56000	46.66%
24	40	160000	11.88	13.20	80000	50.00%
25	31	124000	11.81	13.52	56000	45.16%
26	30	120000	11.28	12.23	56000	46.66%
27	39	156000	9.91	10.88	72000	46.15%
28	44	176000	10.20	11.31	71896	40.84%
29	30	120000	10.72	11.76	56000	46.66%
30	30	120000	12.41	14.18	56000	46.66%
31	44	176000	11.14	13.54	76714	43.58%
32	31	124000	10.70	11.35	56000	45.16%
33	35	140000	10.94	12.30	64000	45.71%
34	33	132000	11.60	14.53	64000	48.48%
35	35	140000	11.59	13.33	64000	45.71%
36	40	160000	11.50	12.27	76800	48.00%
37	35	140000	11.31	13.71	64000	45.71%
38	38	152000	12.73	13.75	72000	47.36%
39	40	160000	11.66	12.89	80000	50.00%
40	40	160000	10.30	10.55	80000	50.00%

Tasa de Casamiento: 55%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	154000	11.54	13.40	72000	46.75%
2	38	167200	11.53	12.62	80000	47.84%
3	35	154000	13.11	14.46	72000	46.75%
4	40	176000	11.51	12.54	81587	46.35%
5	32	140800	10.82	12.20	64000	45.45%
6	40	176000	11.99	14.28	70972	40.32%
7	38	167200	9.19	11.36	72490	43.35%
8	34	149600	11.25	11.88	72000	48.12%
9	31	136400	12.49	13.68	64000	46.92%
10	38	167200	10.89	12.44	72930	43.61%
11	38	167200	11.70	12.13	80000	47.84%
12	42	184800	10.21	11.70	78771	42.62%
13	42	184800	11.53	12.70	78958	42.72%
14	34	149600	10.54	11.76	72000	48.12%
15	37	162800	12.60	14.49	79490	48.82%
16	44	193600	10.26	11.29	74352	38.40%
17	35	154000	12.47	14.80	71739	46.58%
18	31	136400	11.11	12.29	64000	46.92%
19	35	154000	11.62	12.50	72000	46.75%
20	43	189200	10.98	12.10	77242	40.82%
21	37	162800	9.60	11.82	74940	46.30%
22	42	184800	12.13	12.45	75702	40.96%
23	31	136400	13.72	14.41	64000	46.92%
24	43	189200	11.50	12.90	78397	41.43%
25	41	180400	11.96	13.67	79959	44.32%
26	39	171600	11.28	12.23	74760	43.56%
27	33	145200	10.14	10.88	72000	49.58%
28	37	162800	10.20	11.34	74390	45.69%
29	41	180400	10.72	12.60	80212	44.46%
30	41	180400	12.41	13.45	75834	42.30%
31	34	149600	11.14	12.98	72000	48.12%
32	34	149600	10.14	11.41	72000	48.12%
33	41	180400	10.94	11.72	74360	41.21%
34	42	184800	11.47	14.40	70444	38.11%
35	43	189200	11.59	13.12	70851	37.44%
36	31	136400	11.16	12.44	64000	46.92%
37	41	180400	11.31	13.61	75075	41.61%
38	31	136400	12.73	13.45	64000	46.92%
39	44	193600	11.66	13.18	77928	40.25%
40	40	176000	10.27	10.55	81180	46.12%

Tasa de Casamiento: 60%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	40	192000	11.54	12.40	81096	42.23%
2	35	168000	11.53	13.34	80000	47.61%
3	42	201600	13.11	14.65	86448	42.88%
4	41	196799	11.80	12.51	81396	41.35%
5	44	211200	10.82	12.20	77012	36.46%
6	40	192000	11.99	14.52	71700	37.34%
7	38	182400	9.19	11.55	72875	39.95%
8	44	211200	11.25	12.42	75114	35.56%
9	33	158400	12.49	13.18	72000	45.45%
10	40	192000	10.89	12.33	70956	36.95%
11	37	177600	11.70	11.78	81631	45.96%
12	35	168000	10.21	11.70	80000	47.61%
13	40	192000	11.45	12.81	78456	40.86%
14	40	192000	10.54	11.92	70356	36.64%
15	31	148799	12.60	14.64	72000	48.38%
16	33	158400	9.65	11.97	72000	45.45%
17	43	206400	12.47	14.38	68532	33.20%
18	44	211200	11.11	12.29	77220	36.56%
19	33	158400	11.74	12.35	72000	45.45%
20	34	163200	10.98	12.10	79400	48.65%
21	34	163200	9.52	11.70	74410	45.59%
22	30	144000	12.13	12.96	72000	50.00%
23	34	163200	13.53	14.30	80000	49.10%
24	37	177600	11.50	13.32	79101	44.53%
25	30	144000	11.96	13.16	72000	50.00%
26	42	201600	11.28	12.23	72348	35.88%
27	38	182400	9.91	10.88	74943	41.80%
28	38	182400	10.35	11.31	73645	40.37%
29	34	163200	10.72	11.33	80000	49.10%
30	44	211200	12.41	14.40	71877	34.30%
31	43	206400	11.14	12.98	76020	36.83%
32	43	206400	10.70	11.41	75672	36.66%
33	35	168000	10.94	12.30	75030	44.66%
34	39	187200	11.47	13.81	70499	37.65%
35	36	172799	11.59	12.53	74430	43.70%
36	41	196799	11.50	12.32	74412	37.81%
37	36	172799	11.40	13.61	75920	43.93%
38	37	177600	12.73	13.45	76274	42.94%
39	36	172799	11.66	13.18	80000	46.29%
40	38	182400	10.27	10.99	81301	44.57%

Tasa de Casamiento: 65%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	33	171600	11.54	13.40	80000	46.62%
2	34	176800	11.53	12.62	81708	46.21%
3	41	213200	13.11	14.65	84188	39.48%
4	37	192400	11.80	12.40	81576	42.39%
5	31	161200	10.77	12.20	80000	49.62%
6	34	176800	11.99	14.36	72699	41.11%
7	35	182000	9.19	11.68	73766	40.53%
8	33	171600	11.25	11.88	78590	45.79%
9	30	156000	12.35	13.44	72000	46.15%
10	41	213200	10.86	12.44	72072	33.80%
11	43	223600	11.70	11.85	78286	35.10%
12	44	228800	11.19	11.74	76062	33.24%
13	41	213200	11.45	12.81	78169	36.66%
14	33	171600	10.54	11.76	74110	43.18%
15	39	202800	12.85	14.70	77592	38.26%
16	32	166400	9.65	11.82	78530	47.19%
17	35	182000	11.98	12.94	71588	39.33%
18	44	228800	11.11	12.30	75264	32.89%
19	44	228800	11.74	12.35	78414	34.27%
20	40	208000	10.98	12.10	77545	37.28%
21	44	228800	9.52	11.82	71190	31.11%
22	39	202800	12.13	12.45	75084	37.20%
23	32	166400	13.72	14.49	80000	48.70%
24	41	213200	11.50	13.50	76570	35.91%
25	43	223600	12.19	13.42	79638	35.61%
26	34	176800	11.28	12.64	75526	42.71%
27	39	202800	10.19	10.93	74220	36.59%
28	35	182000	10.35	11.34	73777	40.53%
29	32	166400	10.72	12.60	80000	48.70%
30	44	228800	12.41	13.45	70924	30.99%
31	37	192400	11.14	12.98	74016	38.46%
32	36	187200	10.70	11.41	76538	40.88%
33	35	182000	10.94	12.30	74558	40.96%
34	42	218400	11.47	14.19	68497	31.36%
35	30	156000	11.20	13.49	72000	46.15%
36	40	208000	11.50	12.31	74178	35.66%
37	37	192400	11.31	13.71	74532	38.73%
38	42	218400	12.73	13.76	73372	33.59%
39	40	208000	11.66	13.24	77922	37.46%
40	39	202800	10.27	11.23	80580	39.73%

Tasa de Casamiento: 70%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	35	196000	11.54	13.70	96000	48.97%
2	33	184799	11.53	13.44	88000	47.61%
3	35	196000	13.11	14.65	96000	48.97%
4	39	218399	11.51	12.67	104000	47.61%
5	41	229600	10.82	12.20	112000	48.78%
6	30	168000	11.99	12.94	80000	47.61%
7	39	218399	9.19	10.68	104000	47.61%
8	38	212799	11.25	12.26	104000	48.87%
9	31	173600	12.49	13.68	80000	46.80%
10	35	196000	10.86	11.98	96000	48.97%
11	31	173600	11.36	12.49	80000	46.80%
12	36	201600	11.19	11.90	96000	47.61%
13	44	246399	11.45	12.81	120000	48.70%
14	40	224000	10.54	11.76	112000	50.00%
15	42	235200	12.85	14.17	112000	47.61%
16	34	190399	10.26	11.86	88000	46.21%
17	32	179200	11.98	13.25	88000	49.10%
18	40	224000	11.11	12.32	112000	50.00%
19	30	168000	11.74	12.50	80000	47.61%
20	33	184799	10.98	12.10	88000	47.61%
21	30	168000	9.52	12.33	80000	47.61%
22	44	246399	12.13	12.99	120000	48.70%
23	37	207200	13.69	14.81	96000	46.33%
24	38	212799	11.88	13.52	104000	48.87%
25	44	246399	11.81	13.62	120000	48.70%
26	39	218399	11.28	12.83	104000	47.61%
27	33	184799	10.14	11.19	88000	47.61%
28	43	240799	10.35	11.34	120000	49.83%
29	40	224000	10.72	11.76	112000	50.00%
30	40	224000	12.41	14.55	112000	50.00%
31	34	190399	11.14	13.65	88000	46.21%
32	37	207200	10.70	11.91	96000	46.33%
33	42	235200	10.94	12.23	112000	47.61%
34	33	184799	11.47	13.09	88000	47.61%
35	43	240799	11.59	13.41	120000	49.83%
36	31	173600	11.50	12.31	80000	46.80%
37	31	173600	11.31	13.71	80000	46.80%
38	34	190399	12.73	13.26	88000	46.21%
39	36	201600	11.66	13.24	96000	47.61%
40	34	190399	10.27	10.89	88000	46.21%

Tasa de Casamiento: 75%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	37	222000	11.54	13.33	104000	46.84%
2	42	252000	11.53	13.91	120000	47.61%
3	30	180000	13.11	14.65	88000	48.88%
4	39	234000	11.51	12.53	112000	47.86%
5	41	246000	10.82	12.23	120000	48.78%
6	43	258000	11.99	13.14	128000	49.61%
7	36	216000	9.33	10.68	104000	48.14%
8	31	186000	11.25	12.26	88000	47.31%
9	36	216000	12.49	13.73	104000	48.14%
10	42	252000	10.89	11.98	120000	47.61%
11	39	234000	11.48	12.49	112000	47.86%
12	42	252000	10.21	11.90	120000	47.61%
13	39	234000	11.45	12.72	112000	47.86%
14	39	234000	10.53	11.76	112000	47.86%
15	40	240000	12.56	14.17	120000	50.00%
16	32	192000	10.26	12.00	96000	50.00%
17	32	192000	11.98	13.25	96000	50.00%
18	36	216000	11.11	12.32	104000	48.14%
19	31	186000	11.74	12.50	88000	47.31%
20	42	252000	10.98	12.10	120000	47.61%
21	39	234000	9.52	12.33	112000	47.86%
22	38	228000	12.13	12.99	112000	49.12%
23	32	192000	13.69	14.75	96000	50.00%
24	35	210000	11.88	13.52	104000	49.52%
25	33	198000	11.81	13.68	96000	48.48%
26	33	198000	11.28	12.83	96000	48.48%
27	41	246000	10.14	11.19	120000	48.78%
28	37	222000	10.20	11.34	104000	46.84%
29	42	252000	10.72	11.76	120000	47.61%
30	40	240000	12.41	14.42	120000	50.00%
31	41	246000	11.19	13.65	120000	48.78%
32	40	240000	10.70	11.81	120000	50.00%
33	31	186000	10.94	12.31	88000	47.31%
34	35	210000	11.47	13.15	104000	49.52%
35	32	192000	11.59	13.50	96000	50.00%
36	31	186000	11.50	12.31	88000	47.31%
37	30	180000	11.31	13.64	88000	48.88%
38	31	186000	12.73	13.37	88000	47.31%
39	31	186000	11.66	13.20	88000	47.31%
40	37	222000	10.27	11.16	104000	46.84%

Tasa de Casamiento: 80%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	42	285599	11.54	13.44	136000	47.61%
2	36	244799	11.53	13.91	120000	49.10%
3	32	217600	13.11	14.65	104000	47.79%
4	39	265200	11.80	12.79	128000	48.26%
5	31	210799	10.77	12.20	104000	49.33%
6	44	299200	11.99	13.32	133938	44.76%
7	36	244799	9.19	10.68	120000	49.10%
8	32	217600	11.25	12.42	104000	47.79%
9	34	231200	12.49	13.73	112000	48.44%
10	36	244799	10.89	13.73	120000	49.10%
11	30	204000	11.70	11.98	96000	47.50%
12	38	258399	10.21	11.45	128000	49.53%
13	40	272000	11.45	11.90	136000	50.00%
14	44	299200	10.54	11.84	135090	45.15%
15	32	217600	12.56	13.76	104000	47.79%
16	36	244799	10.26	12.21	120000	49.10%
17	41	278800	11.98	13.47	135915	48.75%
18	38	258399	11.11	12.32	128000	49.53%
19	35	238000	11.74	12.50	112000	47.50%
20	38	258399	10.98	12.10	128000	49.53%
21	40	272000	9.52	12.33	136000	50.00%
22	33	224400	12.13	12.99	112000	49.91%
23	43	292400	13.72	14.75	144000	49.24%
24	31	210799	11.88	13.52	104000	49.33%
25	33	224400	11.81	13.68	112000	49.91%
26	33	224400	11.28	12.96	112000	49.91%
27	44	299200	10.14	11.19	141408	47.26%
28	34	231200	10.20	11.34	112000	48.44%
29	36	244799	10.72	11.76	120000	49.10%
30	38	258399	12.41	14.42	128000	49.53%
31	34	231200	11.19	13.65	112000	48.44%
32	37	251600	10.70	11.81	120000	47.69%
33	39	265200	10.94	12.31	128000	48.26%
34	30	204000	11.47	13.15	96000	47.50%
35	39	265200	11.59	13.50	128000	48.26%
36	43	292400	11.50	12.44	143154	48.95%
37	33	224400	11.31	13.77	112000	49.91%
38	36	244799	12.73	13.37	120000	49.10%
39	32	217600	11.66	13.24	104000	47.79%
40	35	238000	10.27	11.42	112000	47.50%

Tasa de Casamiento: 85%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	42	285599	11.54	13.44	136000	47.61%
2	36	244799	11.53	13.91	120000	49.10%
3	32	217600	13.11	14.65	104000	47.79%
4	39	265200	11.80	12.79	128000	48.26%
5	31	210799	10.77	12.20	104000	49.33%
6	44	299200	11.99	13.32	133938	44.76%
7	36	244799	9.19	10.68	120000	49.10%
8	32	217600	11.25	12.31	104000	47.79%
9	34	231200	12.49	13.73	112000	48.44%
10	36	244799	10.89	13.73	120000	49.10%
11	30	204000	11.70	11.98	96000	47.50%
12	38	258399	10.21	11.24	128000	49.53%
13	40	272000	11.45	12.81	136000	50.00%
14	44	299200	10.54	11.84	135090	45.15%
15	32	217600	12.56	13.35	104000	47.79%
16	36	244799	9.65	11.97	120000	49.10%
17	41	278800	11.98	13.72	135915	48.75%
18	38	258399	11.11	12.32	128000	49.53%
19	35	238000	11.74	12.50	112000	47.50%
20	38	258399	10.98	12.26	128000	49.53%
21	40	272000	9.52	12.33	136000	50.00%
22	33	224400	12.13	13.12	112000	49.91%
23	43	292400	13.72	14.88	144000	49.24%
24	31	210799	12.26	13.55	104000	49.33%
25	33	224400	11.81	13.68	112000	49.91%
26	33	224400	11.28	12.96	112000	49.91%
27	44	299200	9.91	11.19	141408	47.26%
28	34	231200	10.20	11.34	112000	48.44%
29	36	244799	10.72	11.76	120000	49.10%
30	38	258399	12.41	14.42	128000	49.53%
31	34	231200	11.14	13.65	112000	48.44%
32	37	251600	10.90	11.91	120000	47.69%
33	39	265200	10.94	12.31	128000	48.26%
34	30	204000	11.47	13.15	96000	47.50%
35	39	265200	11.20	13.50	128000	48.26%
36	43	292400	11.50	12.44	143154	48.95%
37	33	224400	11.31	13.79	112000	49.91%
38	36	244799	12.73	14.33	120000	49.10%
39	32	217600	11.66	13.24	104000	47.79%
40	35	238000	10.27	11.33	112000	47.50%

Tasa de Casamiento: 90%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	31	223200	11.54	13.53	104000	46.59%
2	39	280800	11.53	13.91	136000	48.43%
3	32	230400	13.11	14.67	112000	48.61%
4	42	302400	11.80	12.79	144000	47.61%
5	34	244800	10.77	12.20	120000	49.10%
6	43	309600	11.99	13.32	134501	43.44%
7	37	266400	9.19	10.68	128000	48.40%
8	36	259200	11.25	12.31	128000	49.38%
9	33	237600	12.49	13.73	112000	47.13%
10	38	273600	10.89	13.73	136000	49.70%
11	43	309600	11.70	11.98	152000	49.90%
12	41	295200	11.20	11.24	144000	48.78%
13	31	223200	11.45	11.90	104000	46.59%
14	40	288000	10.54	11.84	139212	48.33%
15	39	280800	12.60	13.35	136000	48.43%
16	32	230400	9.65	11.97	112000	48.61%
17	35	252000	11.98	13.72	120000	47.61%
18	35	252000	11.11	12.32	120000	47.61%
19	43	309600	11.74	12.50	151753	49.10%
20	32	230400	10.98	12.26	112000	48.61%
21	37	266400	9.50	12.33	128000	48.40%
22	41	295200	12.13	13.12	144000	48.78%
23	36	259200	13.69	14.75	128000	49.38%
24	40	288000	12.26	13.55	144000	50.00%
25	40	288000	12.19	13.68	144000	50.00%
26	38	273600	11.28	12.96	136000	49.70%
27	30	216000	9.91	11.19	104000	48.14%
28	30	216000	10.20	11.34	104000	48.14%
29	44	316800	10.72	11.76	149454	47.17%
30	44	316800	12.41	14.42	140581	44.37%
31	41	295200	11.14	13.65	144000	48.78%
32	36	259200	10.90	11.81	128000	49.38%
33	31	223200	10.94	12.31	104000	46.59%
34	39	280800	11.47	13.15	136000	48.43%
35	33	237600	11.20	13.50	112000	47.13%
36	31	223200	11.50	12.44	104000	46.59%
37	31	223200	11.31	13.79	104000	46.59%
38	39	280800	12.73	14.33	136000	48.43%
39	39	280800	11.66	13.24	136000	48.43%
40	30	216000	10.27	11.33	104000	48.14%

Tasa de Casamiento: 95%

	Tamaño Población	Máximo Casamiento	Fitness Grasp	Fitness Genético	Número Casamientos	Porcentaje Éxito
1	41	311599	11.54	13.53	152000	48.78%
2	37	281200	11.53	13.91	136000	48.36%
3	41	311599	13.11	14.67	152000	48.78%
4	44	334400	11.51	12.79	153340	45.85%
5	44	334400	10.82	12.20	149780	44.79%
6	41	311599	11.99	13.32	135185	43.38%
7	44	334400	9.19	10.68	135340	40.47%
8	36	273599	11.25	12.31	136000	49.70%
9	44	334400	12.35	13.73	148920	44.53%
10	32	243200	10.89	12.89	120000	49.34%
11	37	281200	11.36	11.72	136000	48.36%
12	44	334400	10.21	11.24	146680	43.86%
13	38	288800	11.45	12.21	144000	49.86%
14	34	258399	10.54	11.84	128000	49.53%
15	34	258399	12.60	13.35	128000	49.53%
16	34	258399	10.26	11.97	128000	49.53%
17	34	258399	11.98	13.24	128000	49.53%
18	40	304000	11.22	12.32	148390	48.81%
19	40	304000	11.74	12.50	149606	49.21%
20	44	334400	10.98	12.26	146840	43.91%
21	32	243200	9.52	12.33	120000	49.34%
22	43	326800	11.67	13.12	145520	44.52%
23	34	258399	13.72	14.75	128000	49.53%
24	36	273599	11.50	13.55	136000	49.70%
25	44	334400	12.19	13.68	151780	45.38%
26	40	304000	11.28	13.20	145844	47.97%
27	37	281200	9.91	11.19	136000	48.36%
28	33	250799	10.35	11.34	120000	47.84%
29	42	319200	10.72	11.76	148656	46.57%
30	43	326800	12.41	14.42	144540	44.22%
31	42	319200	11.19	13.65	144951	45.41%
32	31	235600	10.70	11.81	112000	47.53%
33	36	273599	10.94	12.31	136000	49.70%
34	36	273599	11.47	13.15	136000	49.70%
35	33	250799	11.76	13.50	120000	47.84%
36	44	334400	11.50	12.44	143440	42.89%
37	30	228000	11.31	13.77	112000	49.12%
38	33	250799	12.57	14.33	120000	47.84%
39	38	288800	11.66	13.24	144000	49.86%
40	42	319200	10.27	11.23	152000	47.61%

Anexo 7: Calibración de la tasa de mutación del algoritmo Genético entre rango 0.04 y 0.13.

Tasa de Mutación: 4%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	34	10880	11.54	12.91	2881	26.47%
2	36	11520	11.53	13.70	2882	25.10%
3	32	10240	13.11	14.65	2852	27.85%
4	34	10880	11.80	12.53	2812	25.84%
5	33	10560	10.77	11.64	2829	26.78%
6	35	11200	11.99	14.20	2611	23.31%
7	38	12160	9.19	11.36	2670	21.95%
8	32	10240	11.25	12.42	2889	28.21%
9	42	13440	12.49	13.41	2756	20.50%
10	41	13120	10.84	11.63	2588	19.72%
11	36	11520	11.48	11.90	2749	23.86%
12	42	13440	11.19	11.20	2687	19.99%
13	33	10560	11.45	12.70	2729	25.84%
14	30	9600	10.53	11.71	2605	27.13%
15	38	12160	12.60	14.70	2735	22.49%
16	41	13120	10.26	10.76	2514	19.16%
17	32	10240	11.98	13.64	2624	25.62%
18	32	10240	11.11	12.28	2617	25.55%
19	37	11840	11.74	12.24	2661	22.47%
20	39	12480	10.98	12.26	2575	20.63%
21	43	13760	9.60	11.61	2543	18.48%
22	44	14080	12.13	12.53	2623	18.62%
23	33	10560	13.72	14.32	2778	26.30%
24	30	9600	11.50	13.20	2806	29.22%
25	35	11200	11.96	13.53	2769	24.72%
26	38	12160	11.28	12.80	2652	21.80%
27	33	10560	9.91	10.78	2700	25.56%
28	39	12480	10.20	11.34	2609	20.90%
29	33	10560	10.72	12.60	2819	26.69%
30	43	13760	12.41	14.40	2556	18.57%
31	36	11520	11.14	13.10	2587	22.45%
32	40	12800	10.70	11.91	2597	20.28%
33	35	11200	10.94	11.94	2581	23.40%
34	44	14080	11.47	13.50	2513	17.84%
35	43	13760	11.76	12.24	2551	18.53%
36	40	12800	11.50	12.23	2521	19.69%
37	42	13440	11.31	13.26	2629	19.56%
38	40	12800	12.73	14.30	2557	19.97%
39	32	10240	11.76	13.20	2778	27.12%
40	31	9920	10.30	11.42	2797	28.19%

Tasa de Mutación: 5%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	43	17200	11.54	12.63	6279	36.50%
2	41	16400	11.53	13.61	6241	38.50%
3	41	16400	13.29	14.67	6172	37.63%
4	44	17600	11.51	12.33	5814	33.30%
5	44	17600	10.77	11.64	6038	34.30%
6	37	14800	11.99	14.20	5593	37.79%
7	43	17200	9.19	11.36	5183	30.13%
8	31	12400	11.25	12.31	6154	49.62%
9	43	17200	12.49	13.41	5976	34.74%
10	34	13600	10.89	11.63	5750	42.27%
11	40	16000	11.36	11.90	6305	39.40%
12	37	14800	11.19	12.20	5992	40.48%
13	33	13200	11.45	12.70	6087	46.11%
14	30	12000	10.54	11.71	5956	49.63%
15	44	17600	12.85	14.29	5986	34.10%
16	31	12400	9.65	10.76	6115	49.31%
17	34	13600	12.47	13.64	5521	40.59%
18	43	17200	11.11	12.32	5787	33.64%
19	35	14000	11.74	12.37	6356	45.40%
20	38	15200	10.98	12.26	5900	38.81%
21	40	16000	9.52	11.61	5591	34.94%
22	36	14400	11.67	12.53	6041	41.95%
23	37	14800	13.72	14.49	6075	41.40%
24	40	16000	11.88	13.20	5972	37.32%
25	37	14800	11.81	13.57	6290	42.50%
26	39	15600	11.28	12.56	5675	36.37%
27	43	17200	10.14	11.49	5607	32.59%
28	32	12800	10.20	11.34	5885	45.97%
29	33	13200	10.72	11.96	6193	46.91%
30	41	16400	12.41	14.54	5671	34.57%
31	30	12000	11.14	13.10	6032	50.26%
32	39	15600	10.90	11.87	5874	37.65%
33	42	16800	10.94	11.94	5627	33.49%
34	36	14400	11.47	13.50	5809	40.34%
35	34	13600	11.20	12.24	5525	40.62%
36	36	14400	11.50	12.44	5821	40.42%
37	35	14000	11.31	13.26	5967	42.62%
38	33	13200	12.73	14.30	5952	45.90%
39	36	14400	11.66	13.20	6322	43.90%
40	41	16400	10.27	11.36	6032	36.78%

Tasa de Mutación: 6%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	42	20160	11.54	12.70	7273	36.70%
2	40	19200	11.53	13.61	7517	39.15%
3	37	17759	13.11	14.59	7821	44.30%
4	44	21119	11.51	12.33	7280	34.47%
5	44	21119	10.77	11.64	6944	32.88%
6	30	14399	11.99	14.78	6713	46.62%
7	34	16320	9.19	11.36	6577	40.30%
8	37	17759	11.25	12.31	6748	37.99%
9	37	17759	12.49	13.68	6942	39.90%
10	33	15840	10.89	11.63	6702	42.31%
11	41	19680	11.31	11.90	7348	37.33%
12	34	16320	10.21	11.82	7430	45.52%
13	39	18720	11.45	12.81	6863	36.66%
14	36	17280	10.54	11.71	6361	36.81%
15	39	18720	12.85	14.52	7124	38.50%
16	40	19200	9.65	10.76	6762	35.21%
17	33	15840	11.98	12.89	6586	41.57%
18	43	20640	11.11	12.32	6930	33.57%
19	30	14399	11.74	12.35	7691	53.41%
20	44	21119	10.98	12.26	6752	31.97%
21	32	15360	9.52	11.61	6845	44.56%
22	37	17759	12.13	12.96	6879	38.73%
23	44	21119	13.72	14.49	6884	32.59%
24	31	14879	11.88	13.20	7587	50.99%
25	40	19200	11.81	13.57	7364	38.35%
26	34	16320	11.28	12.56	6812	41.74%
27	31	14879	10.14	11.66	7070	47.51%
28	40	19200	10.20	11.34	6564	34.18%
29	35	16800	10.72	11.96	7490	44.58%
30	32	15360	12.41	14.53	6951	45.25%
31	34	16320	11.14	13.10	6944	42.54%
32	37	17759	10.70	11.91	7053	39.71%
33	36	17280	11.60	12.31	6627	38.35%
34	32	15360	11.47	13.50	6769	44.60%
35	40	19200	11.59	12.24	6342	33.30%
36	37	17759	11.50	12.31	6762	38.70%
37	32	15360	11.31	13.26	7155	46.58%
38	35	16800	12.73	14.23	6930	41.25%
39	40	19200	11.66	13.20	6978	36.34%
40	39	18720	10.27	11.33	7147	38.17%

Tasa de Mutación: 7%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	38	21280	11.54	12.63	8169	38.38%
2	35	19600	11.53	13.81	8727	44.52%
3	40	22400	13.12	14.67	8895	39.70%
4	38	21280	11.80	12.79	8673	40.75%
5	33	18480	10.77	11.64	8547	46.25%
6	36	20160	11.99	14.75	7355	36.48%
7	31	17360	9.19	11.36	7765	44.72%
8	40	22400	11.25	12.31	7875	35.15%
9	40	22400	12.49	13.41	7968	35.57%
10	40	22400	10.86	11.63	7378	32.93%
11	31	17360	11.31	12.93	8834	50.88%
12	41	22960	11.20	11.96	7708	33.57%
13	31	17360	11.45	12.70	8386	48.30%
14	34	19040	10.54	11.71	7468	39.22%
15	36	20160	12.56	14.29	8073	40.40%
16	34	19040	9.65	10.76	8003	42.30%
17	41	22960	11.98	12.47	7097	30.91%
18	32	17920	11.11	12.32	8373	46.72%
19	44	24640	11.74	12.37	8278	33.59%
20	43	24080	10.98	12.26	7758	32.21%
21	42	23520	9.52	11.61	7165	30.46%
22	44	24640	12.13	12.53	7441	30.19%
23	31	17360	13.69	14.49	8549	49.24%
24	41	22960	12.26	13.55	7907	34.43%
25	44	24640	11.81	13.57	8444	34.26%
26	44	24640	11.28	12.56	7380	29.95%
27	41	22960	10.14	11.10	7575	32.99%
28	37	20720	10.20	11.31	7512	36.25%
29	38	21280	10.72	11.76	8118	38.14%
30	42	23520	12.41	14.35	7499	31.88%
31	31	17360	11.14	13.10	8256	47.55%
32	30	16800	10.70	11.87	8375	49.85%
33	37	20720	10.94	11.94	7629	36.81%
34	44	24640	11.47	13.50	7025	28.51%
35	34	19040	11.20	12.24	7567	39.74%
36	31	17360	11.50	12.31	8239	47.45%
37	40	22400	11.31	13.51	7591	33.88%
38	33	18480	12.73	14.30	7850	42.47%
39	43	24080	11.66	13.24	7768	32.25%
40	30	16800	10.27	11.23	8970	53.39%

Tasa de Mutación: 8%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	41	26240	11.54	12.70	15209	57.96%
2	43	27520	11.53	13.61	15021	54.58%
3	38	24320	13.11	14.59	15540	63.89%
4	40	25600	11.51	12.33	15151	59.18%
5	41	26240	10.82	11.71	14523	55.34%
6	33	21120	11.99	14.94	13514	63.98%
7	30	19200	9.19	11.68	14203	73.97%
8	32	20480	11.25	12.31	14499	70.79%
9	39	24960	12.49	13.68	14530	58.21%
10	32	20480	10.89	11.63	13595	66.38%
11	35	22400	11.31	11.90	15555	69.44%
12	40	25600	11.19	11.74	13941	54.45%
13	37	23680	11.45	12.81	14710	62.11%
14	30	19200	10.54	11.71	14133	73.60%
15	32	20480	12.60	14.84	15327	74.83%
16	37	23680	10.26	11.82	14190	59.92%
17	43	27520	11.98	12.89	12115	44.20%
18	36	23040	11.11	12.32	14349	62.27%
19	39	24960	11.62	12.50	14573	58.38%
20	36	23040	10.98	12.26	14733	63.94%
21	43	27520	9.60	11.61	13273	48.23%
22	38	24320	12.13	12.99	13471	55.39%
23	33	21120	13.72	14.49	15087	71.43%
24	41	26240	11.88	13.52	14691	55.98%
25	42	26880	11.96	13.79	14669	54.57%
26	44	28160	11.28	12.56	13071	46.41%
27	35	22400	10.14	11.58	14042	62.68%
28	44	28160	10.20	11.34	12964	46.30%
29	39	24960	10.72	11.96	14712	58.94%
30	30	19200	12.41	14.55	14842	77.30%
31	32	20480	11.14	13.10	14287	69.76%
32	41	26240	10.70	11.87	13595	51.81%
33	40	25600	11.60	12.31	13242	51.72%
34	44	28160	11.47	13.50	12089	42.92%
35	41	26240	11.76	12.24	12877	49.70%
36	39	24960	11.50	12.44	14069	56.36%
37	43	27520	11.31	13.26	13339	48.47%
38	43	27520	12.73	14.23	13179	47.88%
39	35	22400	11.66	13.24	14739	65.79%
40	38	24320	10.27	11.33	14559	59.86%

Tasa de Mutación: 9%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	42	30240	11.54	12.70	15965	52.79%
2	31	22320	11.53	13.61	17460	78.22%
3	44	31680	13.12	14.59	16359	51.63%
4	34	24480	11.51	12.33	16540	67.56%
5	43	30959	10.82	11.71	15335	49.53%
6	44	31680	11.99	14.75	13496	42.60%
7	30	21599	9.19	11.67	15015	69.51%
8	39	28080	11.25	12.31	15071	53.67%
9	34	24480	12.49	13.68	16347	66.77%
10	30	21599	10.86	11.63	15131	70.50%
11	38	27360	11.36	11.90	16828	61.50%
12	38	27360	10.21	11.19	15358	56.13%
13	44	31680	11.53	12.81	15109	47.69%
14	35	25200	10.54	11.71	14420	57.22%
15	41	29520	12.60	14.84	15180	51.42%
16	43	30959	10.26	11.97	14645	47.30%
17	43	30959	11.98	12.89	13458	43.47%
18	30	21599	11.11	12.32	16142	74.73%
19	39	28080	11.74	12.50	15990	56.94%
20	42	30240	10.98	12.26	14937	49.39%
21	31	22320	9.52	11.52	15208	68.13%
22	34	24480	12.13	12.99	15455	63.13%
23	42	30240	13.72	14.49	15132	50.30%
24	32	23040	11.88	13.52	16735	72.63%
25	40	28799	11.81	13.68	16093	55.88%
26	34	24480	11.28	12.56	15272	62.38%
27	43	30959	10.19	11.49	14291	46.16%
28	40	28799	10.56	11.34	14052	48.79%
29	36	25919	10.72	11.76	16159	62.34%
30	33	23759	12.41	14.55	15142	63.73%
31	34	24480	11.14	13.10	15431	63.30%
32	42	30240	10.90	11.74	14906	49.29%
33	43	30959	11.60	12.30	14440	46.64%
34	42	30240	11.47	13.50	13639	45.10%
35	39	28080	11.20	12.10	13809	49.17%
36	35	25200	11.50	12.44	14877	59.30%
37	30	21599	11.31	13.26	15963	73.90%
38	44	31680	12.73	14.23	14702	46.40%
39	42	30240	11.66	13.24	15603	51.59%
40	31	22320	10.27	11.33	17121	76.70%

Tasa de Mutación: 10%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	43	34400	11.54	12.70	23182	67.38%
2	37	29600	11.53	13.61	23972	80.98%
3	33	26400	13.11	14.59	22466	85.90%
4	33	26400	11.51	12.33	22329	84.57%
5	40	32000	10.82	11.64	23088	72.15%
6	34	27200	11.99	14.75	21137	77.70%
7	39	31200	9.19	11.68	21162	67.82%
8	37	29600	11.25	12.31	22522	76.80%
9	33	26400	12.49	13.68	22161	83.94%
10	37	29600	10.86	11.63	21048	71.10%
11	30	24000	11.48	11.90	19333	80.55%
12	41	32800	10.21	11.82	22736	69.31%
13	44	35200	11.45	12.81	22312	63.38%
14	36	28800	10.54	11.71	21237	73.73%
15	41	32800	12.60	14.52	22370	68.20%
16	38	30400	10.26	11.50	22323	73.43%
17	39	31200	11.98	12.89	20825	66.74%
18	44	35200	11.11	12.32	22045	62.62%
19	31	24800	11.74	12.50	20853	84.80%
20	37	29600	11.23	12.26	22687	76.64%
21	36	28800	9.50	11.61	21940	76.18%
22	32	25600	12.13	12.96	20805	81.26%
23	42	33600	13.72	14.49	22379	66.60%
24	35	28000	11.88	13.20	22300	79.64%
25	38	30400	11.81	13.57	23323	76.72%
26	44	35200	11.28	12.56	21244	60.35%
27	31	24800	10.14	11.66	20808	83.90%
28	38	30400	10.20	11.34	21427	70.48%
29	31	24800	10.72	11.96	20887	84.22%
30	43	34400	12.41	14.53	21371	62.12%
31	32	25600	11.14	13.10	20706	80.88%
32	38	30400	10.70	11.90	22448	73.84%
33	37	29600	11.60	12.31	21830	73.75%
34	38	30400	11.47	13.50	20731	68.19%
35	43	34400	11.59	12.24	20617	59.93%
36	35	28000	11.50	12.31	21886	78.16%
37	36	28800	11.31	13.26	21903	76.50%
38	34	27200	12.73	14.23	22253	81.81%
39	32	25600	11.66	13.20	21023	82.12%
40	35	28000	10.27	11.23	22328	79.74%

Tasa de Mutación: 11%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	41	36080	11.54	12.84	24614	68.22%
2	33	29040	11.53	13.61	24756	85.24%
3	35	30800	13.11	14.59	24477	79.47%
4	31	27280	11.51	12.79	22958	84.15%
5	38	33440	10.82	11.71	24199	72.36%
6	33	29040	11.99	14.94	22271	76.69%
7	33	29040	9.19	11.68	22583	77.76%
8	30	26400	11.25	12.31	21041	79.70%
9	39	34320	12.35	13.73	24023	69.99%
10	41	36080	10.89	11.63	21692	60.12%
11	40	35200	11.70	11.90	24123	68.53%
12	31	27280	11.19	11.74	22706	83.23%
13	40	35200	11.45	12.70	22928	65.13%
14	36	31680	10.54	11.71	21963	69.32%
15	42	36960	12.60	14.59	23466	63.49%
16	43	37840	10.26	11.97	22714	60.20%
17	42	36960	11.98	12.89	21255	57.50%
18	44	38720	11.11	12.32	23071	59.58%
19	40	35200	11.74	12.50	23819	67.66%
20	41	36080	10.98	12.26	23249	64.43%
21	38	33440	9.60	11.61	22461	67.16%
22	44	38720	12.13	12.99	22440	57.95%
23	37	32560	13.72	14.49	23623	72.55%
24	30	26400	11.50	13.44	20995	79.52%
25	38	33440	11.96	13.70	24275	72.59%
26	34	29920	11.28	12.56	23383	78.15%
27	43	37840	10.14	11.49	22017	58.18%
28	43	37840	10.35	11.33	21939	57.97%
29	34	29920	10.72	11.76	24363	81.42%
30	30	26400	12.41	14.55	21004	79.56%
31	38	33440	11.14	13.10	23016	68.82%
32	35	30800	10.70	11.92	23548	76.45%
33	33	29040	10.94	11.60	23312	80.27%
34	41	36080	11.47	13.50	21192	58.73%
35	30	26400	11.59	12.24	21304	80.69%
36	30	26400	11.16	12.41	21201	80.30%
37	31	27280	11.31	13.26	22907	83.96%
38	34	29920	12.73	14.53	23188	77.50%
39	44	38720	11.66	13.17	23002	59.40%
40	32	28160	10.27	10.89	22874	81.22%

Tasa de Mutación: 12%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	43	41280	11.54	13.42	24498	59.34%
2	38	36480	11.53	13.74	25968	71.18%
3	37	35519	13.11	14.67	26221	73.82%
4	34	32640	11.80	12.79	25732	78.83%
5	30	28799	10.82	11.71	23011	79.90%
6	40	38400	11.99	14.94	22539	58.69%
7	35	33600	9.19	11.57	23269	69.25%
8	43	41280	11.25	12.31	23049	55.83%
9	39	37440	12.49	13.73	24735	66.60%
10	36	34560	10.89	11.63	22841	66.90%
11	41	39360	11.70	12.25	25171	63.95%
12	34	32640	10.21	11.74	24900	76.28%
13	31	29759	11.45	12.70	24903	83.68%
14	34	32640	10.54	11.71	23092	70.74%
15	42	40320	12.85	13.59	24112	59.80%
16	43	41280	10.26	11.97	23370	56.61%
17	34	32640	11.98	12.89	22867	70.50%
18	33	31680	11.18	12.32	25019	78.97%
19	32	30720	11.74	12.50	24844	80.87%
20	31	29759	10.98	12.26	24930	83.77%
21	42	40320	9.60	11.61	22859	56.69%
22	43	41280	12.13	12.72	23074	55.89%
23	37	35519	13.72	14.49	24532	69.60%
24	43	41280	11.50	13.44	24352	58.99%
25	31	29759	11.96	13.70	25117	84.40%
26	32	30720	11.28	12.56	23972	78.30%
27	32	30720	10.14	11.49	24044	78.26%
28	33	31680	10.35	11.34	23753	74.97%
29	44	42239	10.72	11.76	24484	57.96%
30	41	39360	12.41	14.42	23241	59.40%
31	30	28799	11.14	13.10	22866	79.39%
32	34	32640	10.70	11.91	24912	76.32%
33	31	29759	11.60	12.31	24147	81.14%
34	30	28799	11.47	13.50	23068	80.10%
35	35	33600	11.59	12.24	23285	69.30%
36	41	39360	11.16	12.44	23327	59.26%
37	31	29759	11.31	13.69	24376	81.91%
38	43	41280	12.73	14.53	23464	56.84%
39	37	35519	11.66	13.24	24928	70.18%
40	35	33600	10.27	11.33	25689	76.45%

Tasa de Mutación: 13%

	Tamaño Población	Máximo Mutaciones	Fitness Grasp	Fitness Genético	Número Mutaciones	Porcentaje Éxito
1	37	38480	11.54	12.63	30405	79.10%
2	42	43680	11.53	13.83	30242	69.23%
3	34	35360	13.11	14.67	29043	82.13%
4	36	37440	11.80	12.46	30475	81.39%
5	30	31200	10.77	11.64	24932	79.91%
6	43	44720	11.99	14.75	27216	60.85%
7	33	34320	9.19	11.36	28631	83.42%
8	39	40560	11.25	12.31	28959	71.39%
9	32	33280	12.49	13.41	26838	80.64%
10	34	35360	10.86	11.63	28372	80.23%
11	41	42640	11.70	12.56	29879	70.70%
12	35	36400	10.21	11.96	29147	80.70%
13	30	31200	11.45	12.70	24957	79.99%
14	41	42640	10.54	12.16	27630	64.79%
15	31	32240	12.60	14.79	27215	84.41%
16	41	42640	10.26	11.96	28768	67.46%
17	39	40560	11.98	12.47	27610	68.70%
18	41	42640	11.11	12.31	29055	68.14%
19	42	43680	11.74	12.37	29598	67.76%
20	31	32240	10.98	12.10	27070	83.96%
21	36	37440	9.52	11.61	28857	77.70%
22	31	32240	12.13	12.53	27108	84.80%
23	44	45760	13.72	14.49	28828	62.99%
24	33	34320	11.50	12.26	29179	85.20%
25	35	36400	11.96	13.57	29258	80.37%
26	32	33280	11.28	12.56	26929	80.91%
27	32	33280	10.14	11.10	27008	81.15%
28	33	34320	10.20	11.33	28643	83.45%
29	34	35360	10.72	11.76	28968	81.92%
30	44	45760	12.41	14.35	28106	61.42%
31	35	36400	11.14	13.10	28906	79.41%
32	30	31200	10.70	11.92	25202	80.77%
33	34	35360	10.94	11.94	28957	81.89%
34	33	34320	11.47	13.50	28159	82.40%
35	35	36400	11.76	12.24	28558	78.45%
36	37	38480	11.50	12.31	28776	74.78%
37	39	40560	11.31	13.51	28787	70.97%
38	41	42640	12.73	14.30	28504	66.84%
39	37	38480	11.66	13.20	29510	76.68%
40	31	32240	10.27	11.33	27075	83.97%

Anexo 8: Experimentación del comportamiento de la función fitness entre los algoritmos GRASP y Genético para 40 juegos de datos.

Juego de Datos	Fitness Promedio GRASP	Fitness Promedio Genético
1	11.54	13.70
2	11.53	14.50
3	13.12	14.67
4	11.51	12.79
5	10.82	12.62
6	11.99	14.94
7	9.19	11.68
8	11.25	12.42
9	12.49	13.73
10	10.89	12.49
11	11.70	12.95
12	11.20	12.20
13	11.45	12.81
14	10.54	12.70
15	12.85	14.84
16	10.26	12.00
17	12.47	14.38
18	11.22	12.32
19	11.62	12.50
20	10.98	12.26
21	9.60	12.60
22	12.13	13.12
23	13.72	14.88
24	12.26	13.55
25	11.96	13.79
26	11.28	13.70
27	10.19	11.67
28	10.35	11.34
29	10.72	12.60
30	12.44	14.55
31	11.19	14.37
32	10.90	11.92
33	11.80	12.31
34	11.60	15.36
35	11.76	13.50
36	11.50	12.44
37	11.31	13.77
38	12.73	14.92
39	11.66	13.24
40	10.30	11.42

Anexo 9: Experimentación de la prueba K-S aplicados a los resultados generados.

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 $
9.19	-2.43	0.025	0.007	0.018
9.60	-1.99	0.05	0.023	0.027
10.19	-1.36	0.075	0.087	0.012
10.26	-1.28	0.1	0.100	0.000
10.30	-1.24	0.125	0.108	0.017
10.35	-1.18	0.15	0.118	0.032
10.54	-0.98	0.175	0.163	0.012
10.72	-0.79	0.2	0.216	0.016
10.82	-0.68	0.225	0.249	0.024
10.89	-0.60	0.25	0.273	0.023
10.90	-0.59	0.275	0.277	0.002
10.98	-0.51	0.3	0.306	0.006
11.19	-0.28	0.325	0.390	0.065
11.20	-0.27	0.35	0.394	0.044
11.22	-0.25	0.375	0.402	0.027
11.25	-0.22	0.4	0.415	0.015
11.28	-0.18	0.425	0.427	0.002
11.31	-0.15	0.45	0.440	0.010
11.45	0.00	0.475	0.500	0.025
11.50	0.05	0.5	0.521	0.021
11.51	0.06	0.525	0.526	0.001
11.53	0.09	0.55	0.534	0.016
11.54	0.10	0.575	0.538	0.037
11.60	0.16	0.6	0.564	0.036
11.62	0.18	0.625	0.572	0.053
11.66	0.23	0.65	0.589	0.061
11.70	0.27	0.675	0.606	0.069
11.76	0.33	0.7	0.631	0.069
11.80	0.38	0.725	0.647	0.078
11.96	0.55	0.75	0.708	0.042
11.99	0.58	0.775	0.719	0.056
12.13	0.73	0.8	0.768	0.032
12.26	0.87	0.825	0.808	0.017
12.44	1.07	0.85	0.857	0.007
12.47	1.10	0.875	0.864	0.011
12.49	1.12	0.9	0.868	0.032
12.73	1.38	0.925	0.916	0.009
12.85	1.51	0.95	0.934	0.016
13.12	1.80	0.975	0.964	0.011
13.72	2.44	1	0.993	0.007

Anexo 10: Experimentación de la prueba K-S aplicados a los resultados generados.

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 $
11.34	-1.67	0.025	0.048	0.023
11.42	-1.60	0.05	0.055	0.005
11.67	-1.37	0.075	0.085	0.010
11.68	-1.36	0.1	0.087	0.013
11.92	-1.14	0.125	0.126	0.001
12.00	-1.07	0.15	0.142	0.008
12.20	-0.89	0.175	0.186	0.011
12.26	-0.84	0.2	0.201	0.001
12.31	-0.79	0.225	0.214	0.011
12.32	-0.78	0.25	0.217	0.033
12.42	-0.69	0.275	0.244	0.031
12.44	-0.68	0.3	0.250	0.050
12.49	-0.63	0.325	0.264	0.061
12.50	-0.62	0.35	0.267	0.083
12.60	-0.53	0.375	0.298	0.077
12.60	-0.53	0.4	0.298	0.102
12.62	-0.51	0.425	0.304	0.121
12.70	-0.44	0.45	0.330	0.120
12.79	-0.36	0.475	0.360	0.115
12.81	-0.34	0.5	0.366	0.134
12.95	-0.22	0.525	0.415	0.110
13.12	-0.06	0.55	0.475	0.075
13.24	0.05	0.575	0.518	0.057
13.50	0.28	0.6	0.611	0.011
13.55	0.33	0.625	0.628	0.003
13.70	0.46	0.65	0.678	0.028
13.70	0.46	0.675	0.678	0.003
13.73	0.49	0.7	0.687	0.013
13.77	0.52	0.725	0.700	0.025
13.79	0.54	0.75	0.706	0.044
14.37	1.07	0.775	0.857	0.082
14.38	1.07	0.8	0.859	0.059
14.50	1.18	0.825	0.882	0.057
14.55	1.23	0.85	0.890	0.040
14.67	1.34	0.875	0.909	0.034
14.84	1.49	0.9	0.932	0.032
14.88	1.53	0.925	0.936	0.011
14.92	1.56	0.95	0.941	0.009
14.94	1.58	0.975	0.943	0.032
15.36	1.96	1	0.975	0.025

Anexo 11: Experimentación alternativa del algoritmo Genético utilizando una población inicial aleatoria y una población GRASP.

Juego de Datos	Fitness promedio Grasp	Fitness promedio Genético Población Grasp	Fitness Promedio Genético Población Aleatoria
1	11.54	13.53	12.63
2	11.53	14.20	13.72
3	13.12	14.67	14.59
4	11.80	12.79	12.53
5	10.82	12.62	12.31
6	12.23	14.94	14.75
7	9.19	11.68	11.65
8	11.25	12.42	12.31
9	12.49	13.73	13.68
10	10.89	12.49	12.33
11	11.70	12.95	12.93
12	11.19	12.20	11.71
13	11.53	12.81	12.70
14	10.54	12.23	12.19
15	12.85	14.78	14.52
16	10.26	11.97	11.97
17	11.98	14.38	14.36
18	11.31	12.32	12.31
19	11.74	12.50	12.50
20	10.98	12.26	12.14
21	9.60	12.60	12.20
22	12.13	13.60	12.88
23	13.72	14.88	14.53
24	12.26	13.55	13.52
25	11.96	13.79	13.68
26	11.28	13.70	12.21
27	10.14	11.67	11.39
28	10.35	11.34	11.31
29	10.72	12.60	11.76
30	12.41	14.54	14.32
31	11.19	14.34	13.91
32	10.90	11.92	11.91
33	11.80	12.31	12.30
34	11.47	14.49	14.22
35	11.76	13.50	13.47
36	11.50	12.44	12.31
37	11.31	13.79	13.64
38	12.73	14.39	13.56
39	11.76	13.24	12.95
40	10.30	11.42	11.23