

# Solução do Problema ganges - Solver HiGHS

Análise Computacional

17 de setembro de 2025

## 1 Informações do Problema

### Informações do Problema:

- Nome: ganges
- Número de Variáveis: 1681
- Número de Restrições: 1309
- Inviabilidade Primal: 3.638e-12
- Inviabilidade Dual: 4.263e-13
- Valor Primal: -1.096e+05
- Valor Dual: -5.851e+04
- Gap: -8.482e-21
- Número de Iterações: 21

## 2 Variáveis Primais e Custos Reduzidos

Tabela 1: Variáveis primais e custos reduzidos do problema ganges

Coordenada x	Valor x	Coordenada z	Valor z
1	18541.137878	1	0.000000
2	15353.259682	2	0.000000
3	18458.935803	3	0.000000
4	22899.349861	4	0.000000
5	50660.795367	5	0.000000
6	105543.454000	6	0.000000
7	183954.355890	7	0.000000
8	242870.996600	8	0.000000
9	197155.173178	9	0.000000
10	92087.086964	10	0.000000
11	36745.781769	11	0.000000
12	24835.744548	12	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
13	4954.136378	13	0.000000
14	5040.256681	14	0.000000
15	6207.931302	15	0.000000
16	4827.348361	16	0.000000
17	6983.792366	17	0.000000
18	23401.454000	18	0.000000
19	83955.355890	19	0.000000
20	142871.996600	20	0.000000
21	107378.173178	21	0.000000
22	35050.085463	22	0.000000
23	9805.778768	23	0.000000
24	7365.744548	24	0.000000
25	7890.134877	25	0.000000
26	7976.253679	26	0.000000
27	9143.926800	27	0.000000
28	7763.346860	28	0.000000
29	9919.789364	29	0.000000
30	23401.454000	30	0.000000
31	83955.355890	31	0.000000
32	142871.996600	32	0.000000
33	107378.173178	33	0.000000
34	35050.083962	34	0.000000
35	12741.775767	35	0.000000
36	10301.744548	36	0.000000
37	7881.433340	37	0.000000
38	7967.530606	38	0.000000
39	9143.902190	39	0.000000
40	7763.325324	40	0.000000
41	9919.766291	41	0.000000
42	23401.454000	42	0.000000
43	83853.655890	43	0.000000
44	142629.296600	44	0.000000
45	107067.473178	45	0.000000
46	34887.382426	46	0.000000
47	12659.072694	47	0.000000
48	10281.044548	48	0.000000
49	7091.616385	49	0.000000
50	7362.702883	50	0.000000
51	8477.073698	51	0.000000
52	6998.492181	52	0.000000
53	8290.922381	53	0.000000
54	18614.654000	54	0.000000
55	73195.855890	55	0.000000
56	130244.496600	56	0.000000
57	97951.673178	57	0.000000
58	30717.581657	58	0.000000
59	10808.261157	59	0.000000
60	9108.238361	60	0.000000
61	7082.916187	61	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
62	7353.997685	62	0.000000
63	8477.073500	63	0.000000
64	6998.486786	64	0.000000
65	8290.921985	65	0.000000
66	17934.654000	66	0.000000
67	70373.155890	67	0.000000
68	125239.796600	68	0.000000
69	92878.973178	69	0.000000
70	29874.876657	70	0.000000
71	10725.561157	71	0.000000
72	9087.533163	72	0.000000
73	5963.398705	73	0.000000
74	6629.470203	74	0.000000
75	7777.546018	75	0.000000
76	6359.951822	76	0.000000
77	7072.377021	77	0.000000
78	13497.154000	78	0.000000
79	54365.655890	79	0.000000
80	106728.296600	80	0.000000
81	80966.473178	81	0.000000
82	24142.376657	82	0.000000
83	8200.051157	83	0.000000
84	7376.015681	84	0.000000
85	5058.681466	85	0.000000
86	5267.673423	86	0.000000
87	6420.523678	87	0.000000
88	5235.878325	88	0.000000
89	5704.013581	89	0.000000
90	12600.354000	90	0.000000
91	48539.141000	91	0.000000
92	95389.946000	92	0.000000
93	70033.887000	93	0.000000
94	19231.991867	94	0.000000
95	7482.037734	95	0.000000
96	6333.658860	96	0.000000
97	3838.256281	97	0.000000
98	4085.255437	98	0.000000
99	5274.092892	99	0.000000
100	3905.450756	100	0.000000
101	3941.573211	101	0.000000
102	6347.954000	102	0.000000
103	25418.741000	103	0.000000
104	57280.546000	104	0.000000
105	41076.487000	105	0.000000
106	11807.589066	106	0.000000
107	4941.622132	107	0.000000
108	4719.246475	108	0.000000
109	3804.552486	109	0.000000
110	4064.546642	110	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
111	5265.389097	111	0.000000
112	3905.438166	112	0.000000
113	3941.565621	113	0.000000
114	5869.254000	114	0.000000
115	23010.041000	115	0.000000
116	52361.846000	116	0.000000
117	36218.787000	117	0.000000
118	10893.884066	118	0.000000
119	4846.922132	119	0.000000
120	4648.537680	120	0.000000
121	767.806964	121	0.000000
122	187.817759	122	0.000000
123	410.425554	123	0.000000
124	319.735134	124	0.000000
125	397.829928	125	0.000000
126	2525.787000	126	0.000000
127	8932.100000	127	0.000000
128	13597.787000	128	0.000000
129	10439.787000	129	0.000000
130	2932.794795	130	0.000000
131	1223.802590	131	0.000000
132	1351.677169	132	0.000000
133	200.807739	133	0.000000
134	187.800000	134	0.000000
135	175.802261	135	0.000000
136	249.803218	136	0.000000
137	397.805479	137	0.000000
138	1322.800000	138	0.000000
139	5269.800000	139	0.000000
140	8575.800000	140	0.000000
141	5417.800000	141	0.000000
142	1729.802261	142	0.000000
143	656.804521	143	0.000000
144	335.805479	144	0.000000
145	356.500000	145	0.000000
146	343.500000	146	0.000000
147	331.500000	147	0.000000
148	405.500000	148	0.000000
149	553.500000	149	0.000000
150	1478.500000	150	0.000000
151	5425.500000	151	0.000000
152	8731.500000	152	0.000000
153	5573.500000	153	0.000000
154	1885.500000	154	0.000000
155	812.500000	155	0.000000
156	491.500000	156	0.000000
157	654.000000	157	0.000000
158	641.000000	158	0.000000
159	629.000000	159	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
160	703.000000	160	0.000000
161	851.000000	161	0.000000
162	1776.000000	162	0.000000
163	5723.000000	163	0.000000
164	9029.000000	164	0.000000
165	5871.000000	165	0.000000
166	2183.000000	166	0.000000
167	1110.000000	167	0.000000
168	789.000000	168	0.000000
169	789.800000	169	0.000000
170	604.800000	170	0.000000
171	666.800000	171	0.000000
172	764.800000	172	0.000000
173	1628.800000	173	0.000000
174	4786.800000	174	0.000000
175	10657.800000	175	0.000000
176	12384.800000	176	0.000000
177	9115.800000	177	0.000000
178	4169.800000	178	0.000000
179	1850.800000	179	0.000000
180	1172.800000	180	0.000000
181	1119.500000	181	0.000000
182	724.500000	182	0.000000
183	699.500000	183	0.000000
184	638.500000	184	0.000000
185	1218.500000	185	0.000000
186	4437.500000	186	0.000000
187	16007.500000	187	0.000000
188	18511.500000	188	0.000000
189	11912.500000	189	0.000000
190	5732.500000	190	0.000000
191	2525.500000	191	0.000000
192	1711.500000	192	0.000000
193	775.935019	193	0.000000
194	1200.789000	194	0.000000
195	1163.789000	195	0.000000
196	898.724616	196	0.000000
197	1110.789000	197	0.000000
198	123.800000	198	0.000000
199	2733.514890	199	0.000000
200	5924.350600	200	0.000000
201	5518.586178	201	0.000000
202	4105.159231	202	0.000000
203	653.562304	203	0.000000
204	945.800161	204	0.000000
205	775.935019	205	0.000000
206	1200.789000	206	0.000000
207	1163.789000	207	0.000000
208	898.724616	208	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
209	1110.789000	209	0.000000
210	407.000000	210	0.000000
211	3016.714890	211	0.000000
212	6207.550600	212	0.000000
213	5801.786178	213	0.000000
214	4388.359231	214	0.000000
215	936.762304	215	0.000000
216	945.800161	216	0.000000
217	8.700000	217	0.000000
218	8.700000	218	0.000000
219	0.000000	219	0.549390
220	0.000000	220	0.549390
221	0.000000	221	0.549390
222	0.000000	222	0.549390
223	101.700000	223	0.000000
224	242.700000	224	0.000000
225	310.700000	225	0.000000
226	162.700000	226	0.000000
227	82.700000	227	0.000000
228	20.700000	228	0.000000
229	581.935019	229	0.000000
230	1073.789000	230	0.000000
231	1073.789000	231	0.000000
232	831.724616	232	0.000000
233	1073.789000	233	0.000000
234	161.000000	234	0.000000
235	882.714890	235	0.000000
236	515.550600	236	0.000000
237	281.786178	237	0.000000
238	2896.359231	238	0.000000
239	593.762304	239	0.000000
240	647.800161	240	0.000000
241	1220.425185	241	0.000000
242	1182.417986	242	0.000000
243	1146.430786	243	0.000000
244	1330.427569	244	0.000000
245	1762.440370	245	0.000000
246	4438.400000	246	0.000000
247	15862.400000	247	0.000000
248	25408.400000	248	0.000000
249	16256.400000	249	0.000000
250	5610.402801	250	0.000000
251	2540.415601	251	0.000000
252	1614.412384	252	0.000000
253	383.700000	253	0.000000
254	364.700000	254	0.000000
255	346.700000	255	0.000000
256	438.700000	256	0.000000
257	654.700000	257	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
258	1992.700000	258	0.000000
259	7704.700000	259	0.000000
260	12477.700000	260	0.000000
261	7901.700000	261	0.000000
262	2578.700000	262	0.000000
263	1043.700000	263	0.000000
264	580.700000	264	0.000000
265	950.000000	265	0.000000
266	931.000000	266	0.000000
267	913.000000	267	0.000000
268	1005.000000	268	0.000000
269	1221.000000	269	0.000000
270	2559.000000	270	0.000000
271	8271.000000	271	0.000000
272	13044.000000	272	0.000000
273	8468.000000	273	0.000000
274	3145.000000	274	0.000000
275	1610.000000	275	0.000000
276	1147.000000	276	0.000000
277	836.717986	277	0.000000
278	817.717986	278	0.000000
279	799.727986	279	0.000000
280	891.725971	280	0.000000
281	1107.735971	281	0.000000
282	2445.700000	282	0.000000
283	8157.700000	283	0.000000
284	12930.700000	284	0.000000
285	8354.700000	285	0.000000
286	3031.700000	286	0.000000
287	1496.710000	287	0.000000
288	1033.707986	288	0.000000
289	1119.917986	289	0.000000
290	1100.917986	290	0.000000
291	1082.927986	291	0.000000
292	1174.925971	292	0.000000
293	1390.935971	293	0.000000
294	2728.900000	294	0.000000
295	8440.900000	295	0.000000
296	13213.900000	296	0.000000
297	8637.900000	297	0.000000
298	3314.900000	298	0.000000
299	1779.910000	299	0.000000
300	1316.907986	300	0.000000
301	553.600000	301	0.000000
302	534.600000	302	0.000000
303	516.600000	303	0.000000
304	608.600000	304	0.000000
305	824.600000	305	0.000000
306	2162.600000	306	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
307	7874.600000	307	0.000000
308	12647.600000	308	0.000000
309	8071.600000	309	0.000000
310	2748.600000	310	0.000000
311	1213.600000	311	0.000000
312	750.600000	312	0.000000
313	950.000000	313	0.000000
314	931.000000	314	0.000000
315	913.000000	315	0.000000
316	1005.000000	316	0.000000
317	1221.000000	317	0.000000
318	2559.000000	318	0.000000
319	8271.000000	319	0.000000
320	13044.000000	320	0.000000
321	8468.000000	321	0.000000
322	3145.000000	322	0.000000
323	1610.000000	323	0.000000
324	1147.000000	324	0.000000
325	33.700000	325	0.000000
326	20.700000	326	0.000000
327	8.700000	327	0.000000
328	0.000000	328	0.657895
329	0.000000	329	0.657895
330	57.700000	330	0.000000
331	723.700000	331	0.000000
332	1969.700000	332	0.000000
333	1908.700000	333	0.000000
334	501.700000	334	0.000000
335	94.700000	335	0.000000
336	70.700000	336	0.000000
337	566.987000	337	0.000000
338	0.000000	338	0.000000
339	234.600000	339	0.000000
340	69.913000	340	0.000000
341	0.000000	341	0.000000
342	566.987000	342	0.000000
343	1116.300000	343	0.000000
344	566.987000	344	0.000000
345	566.987000	345	0.000000
346	566.987000	346	0.000000
347	566.987000	347	0.000000
348	1015.865000	348	0.000000
349	572.687000	349	0.000000
350	5.700000	350	0.000000
351	240.300000	351	0.000000
352	75.613000	352	0.000000
353	5.700000	353	0.000000
354	572.687000	354	0.000000
355	1122.000000	355	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
356	572.687000	356	0.000000
357	572.687000	357	0.000000
358	572.687000	358	0.000000
359	572.687000	359	0.000000
360	1021.565000	360	0.000000
361	107.000000	361	0.000000
362	66.000000	362	0.000000
363	49.000000	363	0.000000
364	37.000000	364	0.000000
365	21.000000	365	0.000000
366	136.000000	366	0.000000
367	1184.000000	367	0.000000
368	3158.000000	368	0.000000
369	3063.000000	369	0.000000
370	831.000000	370	0.000000
371	189.000000	371	0.000000
372	164.000000	372	0.000000
373	3036.737782	373	0.000000
374	3876.728883	374	0.000000
375	4854.961282	375	0.000000
376	3585.699814	376	0.000000
377	3543.730214	377	0.000000
378	3343.467000	378	0.000000
379	14077.941000	379	0.000000
380	38764.059000	380	0.000000
381	25779.000000	381	0.000000
382	7961.087011	382	0.000000
383	3623.115022	383	0.000000
384	3296.855032	384	0.000000
385	50.400000	385	0.000000
386	9.400000	386	0.000000
387	0.000000	387	0.714388
388	0.000000	388	0.714388
389	0.000000	389	0.714388
390	79.400000	390	0.000000
391	1127.400000	391	0.000000
392	3041.400000	392	0.000000
393	3066.400000	393	0.000000
394	714.400000	394	0.000000
395	132.400000	395	0.000000
396	107.400000	396	0.000000
397	107.000000	397	0.000000
398	66.000000	398	0.000000
399	56.600000	399	0.000000
400	53.800000	400	0.000000
401	56.600000	401	0.000000
402	136.000000	402	0.000000
403	1184.000000	403	0.000000
404	3098.000000	404	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
405	3123.000000	405	0.000000
406	771.000000	406	0.000000
407	189.000000	407	0.000000
408	164.000000	408	0.000000
409	2986.322147	409	0.000000
410	3867.325987	410	0.000000
411	4854.951126	411	0.000000
412	3585.685805	412	0.000000
413	3543.718943	413	0.000000
414	3264.067000	414	0.000000
415	12950.541000	415	0.000000
416	35722.659000	416	0.000000
417	22712.600000	417	0.000000
418	7246.679750	418	0.000000
419	3490.710500	419	0.000000
420	3189.446658	420	0.000000
421	22.000000	421	0.000000
422	0.000000	422	0.714388
423	0.000000	423	0.714388
424	0.000000	424	0.714388
425	0.000000	425	0.714388
426	51.000000	426	0.000000
427	1099.000000	427	0.000000
428	3073.000000	428	0.000000
429	2978.000000	429	0.000000
430	626.000000	430	0.000000
431	104.000000	431	0.000000
432	79.000000	432	0.000000
433	107.000000	433	0.000000
434	85.000000	434	0.000000
435	38.000000	435	0.000000
436	85.000000	436	0.000000
437	85.000000	437	0.000000
438	136.000000	438	0.000000
439	1184.000000	439	0.000000
440	3158.000000	440	0.000000
441	3063.000000	441	0.000000
442	711.000000	442	0.000000
443	189.000000	443	0.000000
444	164.000000	444	0.000000
445	2964.313639	445	0.000000
446	3867.314451	446	0.000000
447	4854.936561	447	0.000000
448	3585.671818	448	0.000000
449	3543.701928	449	0.000000
450	3025.067000	450	0.000000
451	11097.541000	451	0.000000
452	31330.659000	452	0.000000
453	18415.600000	453	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
454	6432.676721	454	0.000000
455	3386.704442	455	0.000000
456	3110.441179	456	0.000000
457	2857.313639	457	0.000000
458	3801.314451	458	0.000000
459	4805.936561	459	0.000000
460	3548.671818	460	0.000000
461	3522.701928	461	0.000000
462	2701.067000	462	0.000000
463	9159.541000	463	0.000000
464	26853.659000	464	0.000000
465	14033.600000	465	0.000000
466	5413.676721	466	0.000000
467	3197.704442	467	0.000000
468	2946.441179	468	0.000000
469	1222.467000	469	0.000000
470	1757.403351	470	0.000000
471	2352.941000	471	0.000000
472	688.073000	472	0.000000
473	253.028649	473	0.000000
474	1222.467000	474	0.000000
475	2352.941000	475	0.000000
476	15040.059000	476	0.000000
477	3774.000000	477	0.000000
478	3330.000000	478	0.000000
479	2352.941000	479	0.000000
480	1720.679000	480	0.000000
481	1222.467000	481	0.000000
482	1757.403351	482	0.000000
483	2352.941000	483	0.000000
484	688.073000	484	0.000000
485	253.028649	485	0.000000
486	1222.467000	486	0.000000
487	2352.941000	487	0.000000
488	15040.059000	488	0.000000
489	3774.000000	489	0.000000
490	3330.000000	490	0.000000
491	2352.941000	491	0.000000
492	1720.679000	492	0.000000
493	1222.467000	493	0.000000
494	1757.403351	494	0.000000
495	2352.941000	495	0.000000
496	688.073000	496	0.000000
497	253.028649	497	0.000000
498	1222.467000	498	0.000000
499	2352.941000	499	0.000000
500	15040.059000	500	0.000000
501	3774.000000	501	0.000000
502	3330.000000	502	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
503	2352.941000	503	0.000000
504	1720.679000	504	0.000000
505	688.073000	505	0.000000
506	3324.403351	506	0.000000
507	785.941000	507	0.000000
508	688.073000	508	0.000000
509	787.422649	509	0.000000
510	688.073000	510	0.000000
511	2352.941000	511	0.000000
512	15040.059000	512	0.000000
513	5341.000000	513	0.000000
514	3330.000000	514	0.000000
515	2352.941000	515	0.000000
516	688.073000	516	0.000000
517	0.000000	517	0.714388
518	0.000000	518	0.714388
519	0.000000	519	0.714388
520	0.000000	520	0.714388
521	0.000000	521	0.714388
522	1290.600000	522	0.000000
523	6052.600000	523	0.000000
524	10494.600000	524	0.000000
525	8940.600000	525	0.000000
526	1486.602261	526	0.000000
527	26.604521	527	0.000000
528	0.000000	528	0.714388
529	90.592261	529	0.000000
530	90.600000	530	0.000000
531	90.597739	531	0.000000
532	90.596782	532	0.000000
533	90.594521	533	0.000000
534	910.200000	534	0.000000
535	4259.200000	535	0.000000
536	7288.200000	536	0.000000
537	5734.200000	537	0.000000
538	1106.200000	538	0.000000
539	117.200000	539	0.000000
540	90.594521	540	0.000000
541	320.000000	541	0.000000
542	320.000000	542	0.000000
543	308.000000	543	0.000000
544	346.000000	544	0.000000
545	408.000000	545	0.000000
546	864.000000	546	0.000000
547	2800.000000	547	0.000000
548	4416.000000	548	0.000000
549	2862.000000	549	0.000000
550	1060.000000	550	0.000000
551	542.000000	551	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
552	382.000000	552	0.000000
553	160.000000	553	0.000000
554	160.000000	554	0.000000
555	154.000000	555	0.000000
556	173.000000	556	0.000000
557	204.000000	557	0.000000
558	432.000000	558	0.000000
559	1400.000000	559	0.000000
560	2208.000000	560	0.000000
561	1431.000000	561	0.000000
562	530.000000	562	0.000000
563	271.000000	563	0.000000
564	191.000000	564	0.000000
565	160.000000	565	0.000000
566	160.000000	566	0.000000
567	154.000000	567	0.000000
568	173.000000	568	0.000000
569	204.000000	569	0.000000
570	432.000000	570	0.000000
571	1400.000000	571	0.000000
572	2208.000000	572	0.000000
573	1431.000000	573	0.000000
574	530.000000	574	0.000000
575	271.000000	575	0.000000
576	191.000000	576	0.000000
577	8.700000	577	0.000000
578	8.700000	578	0.000000
579	0.000000	579	0.549390
580	0.000000	580	0.549390
581	0.000000	581	0.549390
582	0.000000	582	0.549390
583	101.700000	583	0.000000
584	242.700000	584	0.000000
585	310.700000	585	0.000000
586	162.700000	586	0.000000
587	82.700000	587	0.000000
588	20.700000	588	0.000000
589	2936.000000	589	0.000000
590	2936.000000	590	0.000000
591	2936.000000	591	0.000000
592	2936.000000	592	0.000000
593	2936.000000	593	0.000000
594	0.000000	594	0.000000
595	0.000000	595	0.000000
596	0.000000	596	0.000000
597	0.000000	597	0.000000
598	0.000000	598	0.000000
599	2936.000000	599	0.000000
600	2936.000000	600	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
601	0.000000	601	0.000000
602	0.000000	602	0.000000
603	0.000000	603	0.000000
604	0.000000	604	0.000000
605	0.000000	605	0.000000
606	58.205721	606	0.000000
607	0.000000	607	0.000000
608	0.000000	608	0.000000
609	0.000000	609	0.000000
610	1822.570231	610	0.000000
611	0.000000	611	0.000000
612	0.000000	612	0.000000
613	566.300000	613	0.000000
614	566.300000	614	0.000000
615	566.300000	615	0.000000
616	566.300000	616	0.000000
617	566.300000	617	0.000000
618	566.300000	618	0.000000
619	566.300000	619	0.000000
620	566.300000	620	0.000000
621	566.300000	621	0.000000
622	566.300000	622	0.000000
623	566.300000	623	0.000000
624	566.300000	624	0.000000
625	0.000000	625	0.000000
626	0.000000	626	0.000000
627	0.000000	627	0.000000
628	0.000000	628	0.000000
629	0.000000	629	0.000000
630	0.000000	630	0.000000
631	0.000000	631	0.000000
632	0.000000	632	0.000000
633	0.000000	633	0.000000
634	0.000000	634	0.000000
635	0.000000	635	0.000000
636	0.000000	636	0.000000
637	0.000000	637	0.000000
638	5.700000	638	0.000000
639	95.636981	639	0.000000
640	75.613000	640	0.000000
641	5.700000	641	0.000000
642	0.000000	642	0.000000
643	843.044432	643	0.000000
644	0.000000	644	0.000000
645	0.000000	645	0.000000
646	0.000000	646	0.000000
647	0.000000	647	0.000000
648	1021.565000	648	0.000000
649	0.000000	649	0.375000

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Coordenada x	Valor x	Coordenada z	Valor z
650	0.000000	650	0.375000
651	0.000000	651	0.375000
652	0.000000	652	0.375000
653	0.000000	653	0.375000
654	0.000000	654	0.375000
655	897.656000	655	0.000000
656	2811.656000	656	0.000000
657	2836.656000	657	0.000000
658	484.656000	658	0.000000
659	0.000000	659	0.375000
660	0.000000	660	0.375000
661	0.000000	661	0.375000
662	0.000000	662	0.375000
663	0.000000	663	0.375000
664	0.000000	664	0.375000
665	0.000000	665	0.375000
666	0.000000	666	0.375000
667	897.656000	667	0.000000
668	2871.656000	668	0.000000
669	2776.656000	669	0.000000
670	424.656000	670	0.000000
671	0.000000	671	0.375000
672	0.000000	672	0.375000
673	0.000000	673	0.549107
674	0.000000	674	0.549107
675	0.000000	675	0.549107
676	0.000000	676	0.549107
677	0.000000	677	0.549107
678	0.000000	678	0.549107
679	0.000000	679	0.000000
680	12687.118000	680	0.000000
681	1421.059000	681	0.000000
682	977.059000	682	0.000000
683	0.000000	683	0.549107
684	0.000000	684	0.549107
685	0.000000	685	0.000000
686	1052.919706	686	0.000000
687	2352.941000	687	0.000000
688	688.073000	688	0.000000
689	0.000000	689	-0.000000
690	0.000000	690	-0.000000
691	2352.941000	691	0.000000
692	15040.059000	692	0.000000
693	2551.533000	693	0.000000
694	2107.533000	694	0.000000
695	1130.474000	695	0.000000
696	498.212000	696	0.000000
697	0.000000	697	-0.000000
698	2636.330351	698	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
699	97.868000	699	0.000000
700	0.000000	700	-0.000000
701	99.349649	701	0.000000
702	0.000000	702	0.000000
703	1664.868000	703	0.000000
704	14351.986000	704	0.000000
705	4652.927000	705	0.000000
706	2641.927000	706	0.000000
707	1664.868000	707	0.000000
708	0.000000	708	-0.000000
709	155.700000	709	-0.819403
710	155.700000	710	-0.819403
711	155.700000	711	-0.819403
712	155.700000	712	-0.819403
713	155.700000	713	-0.819403
714	155.700000	714	-0.819403
715	155.700000	715	-0.819403
716	155.700000	716	-0.819403
717	155.700000	717	-0.819403
718	155.700000	718	-0.819403
719	155.700000	719	-0.819403
720	155.700000	720	-0.819403
721	297.500000	721	-0.746269
722	297.500000	722	-0.746269
723	297.500000	723	-0.746269
724	297.500000	724	-0.746269
725	297.500000	725	-0.746269
726	297.500000	726	-0.746269
727	297.500000	727	-0.746269
728	297.500000	728	-0.746269
729	297.500000	729	-0.746269
730	297.500000	730	-0.746269
731	297.500000	731	-0.746269
732	297.500000	732	-0.746269
733	283.200000	733	-0.549390
734	283.200000	734	-0.549390
735	283.200000	735	-0.549390
736	283.200000	736	-0.549390
737	283.200000	737	-0.549390
738	283.200000	738	-0.549390
739	283.200000	739	-0.549390
740	283.200000	740	-0.549390
741	283.200000	741	-0.549390
742	283.200000	742	-0.549390
743	283.200000	743	-0.549390
744	283.200000	744	-0.549390
745	311.500000	745	-0.549390
746	311.500000	746	-0.549390
747	311.500000	747	-0.549390

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Coordenada x	Valor x	Coordenada z	Valor z
748	311.500000	748	-0.549390
749	311.500000	749	-0.549390
750	311.500000	750	-0.549390
751	311.500000	751	-0.549390
752	311.500000	752	-0.549390
753	311.500000	753	-0.549390
754	311.500000	754	-0.549390
755	311.500000	755	-0.549390
756	311.500000	756	-0.549390
757	0.000000	757	0.000000
758	0.000000	758	0.000000
759	0.000000	759	0.000000
760	0.000000	760	0.000000
761	0.000000	761	0.000000
762	283.200000	762	0.000000
763	283.200000	763	0.000000
764	283.200000	764	0.000000
765	283.200000	765	0.000000
766	283.200000	766	0.000000
767	283.200000	767	0.000000
768	0.000000	768	0.000000
769	28.300000	769	-0.549390
770	28.300000	770	-0.549390
771	25.000000	771	0.000000
772	19.000000	772	0.000000
773	19.000000	773	0.000000
774	19.000000	774	0.000000
775	28.300000	775	-0.549390
776	28.300000	776	-0.549390
777	28.300000	777	-0.549390
778	28.300000	778	-0.549390
779	28.300000	779	-0.549390
780	28.300000	780	-0.549390
781	283.200000	781	-0.549390
782	283.200000	782	-0.549390
783	283.200000	783	-0.549390
784	283.200000	784	-0.549390
785	283.200000	785	-0.549390
786	283.200000	786	-0.549390
787	283.200000	787	-0.549390
788	283.200000	788	-0.549390
789	283.200000	789	-0.549390
790	283.200000	790	-0.549390
791	283.200000	791	-0.549390
792	283.200000	792	-0.549390
793	396.400000	793	-0.549390
794	396.400000	794	-0.549390
795	396.400000	795	-0.549390
796	396.400000	796	-0.549390

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Coordenada x	Valor x	Coordenada z	Valor z
797	396.400000	797	-0.549390
798	396.400000	798	-0.549390
799	396.400000	799	-0.549390
800	396.400000	800	-0.549390
801	396.400000	801	-0.549390
802	396.400000	802	-0.549390
803	396.400000	803	-0.549390
804	396.400000	804	-0.549390
805	28.300000	805	-0.657895
806	28.300000	806	-0.657895
807	28.300000	807	-0.657895
808	25.000000	808	0.000000
809	12.000000	809	0.000000
810	28.300000	810	-0.657895
811	28.300000	811	-0.657895
812	28.300000	812	-0.657895
813	28.300000	813	-0.657895
814	28.300000	814	-0.657895
815	28.300000	815	-0.657895
816	28.300000	816	-0.657895
817	5.700000	817	-0.819403
818	5.700000	818	-0.819403
819	5.700000	819	-0.819403
820	5.700000	820	-0.819403
821	5.700000	821	-0.819403
822	5.700000	822	-0.819403
823	5.700000	823	-0.819403
824	5.700000	824	-0.819403
825	5.700000	825	-0.819403
826	5.700000	826	-0.819403
827	5.700000	827	-0.819403
828	5.700000	828	-0.819403
829	56.600000	829	-0.714388
830	56.600000	830	-0.714388
831	56.600000	831	-0.000000
832	53.800000	832	0.000000
833	56.600000	833	0.000000
834	56.600000	834	-0.714388
835	56.600000	835	-0.714388
836	56.600000	836	-0.714388
837	56.600000	837	-0.714388
838	56.600000	838	-0.714388
839	56.600000	839	-0.714388
840	56.600000	840	-0.714388
841	85.000000	841	-0.714388
842	85.000000	842	0.000000
843	38.000000	843	0.000000
844	85.000000	844	0.000000
845	85.000000	845	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
846	85.000000	846	-0.714388
847	85.000000	847	-0.714388
848	85.000000	848	-0.714388
849	85.000000	849	-0.714388
850	85.000000	850	-0.714388
851	85.000000	851	-0.714388
852	85.000000	852	-0.714388
853	0.000000	853	0.000000
854	0.000000	854	0.000000
855	0.000000	855	0.000000
856	0.000000	856	0.000000
857	0.000000	857	0.000000
858	0.000000	858	0.000000
859	0.000000	859	0.000000
860	0.000000	860	0.000000
861	0.000000	861	0.000000
862	0.000000	862	0.000000
863	0.000000	863	0.000000
864	0.000000	864	0.000000
865	90.600000	865	0.000000
866	90.600000	866	0.000000
867	90.600000	867	0.000000
868	90.600000	868	0.000000
869	90.600000	869	0.000000
870	90.600000	870	-0.714388
871	90.600000	871	-0.714388
872	90.600000	872	-0.714388
873	90.600000	873	-0.714388
874	90.600000	874	-0.714388
875	90.600000	875	-0.714388
876	90.600000	876	0.000000
877	229.407739	877	0.000000
878	229.400000	878	0.000000
879	217.402261	879	0.000000
880	255.403218	880	0.000000
881	317.405479	881	0.000000
882	424.800000	882	-0.714388
883	424.800000	883	-0.714388
884	424.800000	884	-0.714388
885	424.800000	885	-0.714388
886	424.800000	886	-0.714388
887	424.800000	887	-0.714388
888	291.405479	888	0.000000
889	28.300000	889	-0.549390
890	28.300000	890	-0.549390
891	25.000000	891	0.000000
892	19.000000	892	0.000000
893	19.000000	893	0.000000
894	19.000000	894	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
895	28.300000	895	-0.549390
896	28.300000	896	-0.549390
897	28.300000	897	-0.549390
898	28.300000	898	-0.549390
899	28.300000	899	-0.549390
900	28.300000	900	-0.549390
901	581.935019	901	0.000000
902	1073.789000	902	0.000000
903	1073.789000	903	-0.000000
904	831.724616	904	0.000000
905	1073.789000	905	0.000000
906	102.794279	906	0.000000
907	882.714890	907	0.000000
908	515.550600	908	0.000000
909	281.786178	909	0.000000
910	1073.789000	910	-4.053571
911	593.762304	911	0.000000
912	647.800161	912	0.000000
913	572.687000	913	0.000000
914	0.000000	914	0.000000
915	144.663019	915	0.000000
916	0.000000	916	0.000000
917	0.000000	917	0.000000
918	572.687000	918	0.000000
919	278.955568	919	0.000000
920	572.687000	920	0.000000
921	572.687000	921	0.000000
922	572.687000	922	-5.066964
923	572.687000	923	-0.000000
924	0.000000	924	0.000000
925	107.000000	925	0.000000
926	66.000000	926	0.000000
927	56.600000	927	0.000000
928	53.800000	928	0.000000
929	56.600000	929	0.000000
930	136.000000	930	0.000000
931	286.344000	931	-0.375000
932	286.344000	932	-0.375000
933	286.344000	933	-0.375000
934	286.344000	934	-1.388393
935	189.000000	935	0.000000
936	164.000000	936	0.000000
937	107.000000	937	0.000000
938	85.000000	938	0.000000
939	38.000000	939	0.000000
940	85.000000	940	0.000000
941	85.000000	941	0.000000
942	136.000000	942	0.000000
943	286.344000	943	-0.375000

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Coordenada x	Valor x	Coordenada z	Valor z
944	286.344000	944	-0.375000
945	286.344000	945	-0.375000
946	286.344000	946	-1.388393
947	189.000000	947	0.000000
948	164.000000	948	0.000000
949	1222.467000	949	0.000000
950	1757.403351	950	0.000000
951	2352.941000	951	-0.000000
952	688.073000	952	0.000000
953	253.028649	953	0.000000
954	1222.467000	954	0.000000
955	2352.941000	955	-0.549107
956	2352.941000	956	-0.549107
957	2352.941000	957	-0.549107
958	2352.941000	958	-1.156250
959	2352.941000	959	-0.000000
960	1720.679000	960	0.000000
961	1222.467000	961	0.000000
962	704.483644	962	0.000000
963	0.000000	963	-0.000000
964	0.000000	964	-0.000000
965	253.028649	965	0.000000
966	1222.467000	966	-0.000000
967	0.000000	967	-0.000000
968	0.000000	968	-0.000000
969	1222.467000	969	-0.000000
970	1222.467000	970	-2.026786
971	1222.467000	971	-0.000000
972	1222.467000	972	-0.000000
973	688.073000	973	-0.075893
974	688.073000	974	-0.075893
975	688.073000	975	-0.075893
976	688.073000	976	-0.075893
977	688.073000	977	-0.075893
978	688.073000	978	-0.075893
979	688.073000	979	-0.075893
980	688.073000	980	-0.075893
981	688.073000	981	-0.075893
982	688.073000	982	-2.508929
983	688.073000	983	-0.075893
984	688.073000	984	-0.075893
985	3843.091616	985	0.000000
986	2852.302616	986	0.000000
987	1837.513616	987	0.000000
988	1049.789000	988	0.000000
989	0.000000	989	0.000000
990	0.000000	990	0.000000
991	511.285110	991	0.000000
992	3715.734510	992	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
993	7041.948331	993	0.000000
994	5120.589100	994	0.000000
995	4750.826797	995	0.000000
996	4298.026636	996	0.000000
997	0.000000	997	0.000000
998	117.300000	998	0.000000
999	0.000000	999	0.000000
1000	60.387000	1000	0.000000
1001	227.687000	1001	0.000000
1002	0.000000	1002	0.000000
1003	0.000000	1003	0.000000
1004	1203.313000	1004	0.000000
1005	1789.626000	1005	0.000000
1006	1648.939000	1006	0.000000
1007	1298.252000	1007	0.000000
1008	436.687000	1008	0.000000
1009	60.000000	1009	-0.000000
1010	60.000000	1010	-0.714388
1011	52.400000	1011	0.000000
1012	35.600000	1012	0.000000
1013	0.000000	1013	0.714388
1014	0.000000	1014	0.375000
1015	0.000000	1015	0.000000
1016	60.000000	1016	0.000000
1017	0.000000	1017	0.000000
1018	60.000000	1018	-0.375000
1019	60.000000	1019	0.000000
1020	60.000000	1020	0.000000
1021	120.000000	1021	-0.714388
1022	101.000000	1022	0.000000
1023	112.000000	1023	0.000000
1024	64.000000	1024	0.000000
1025	0.000000	1025	0.714388
1026	0.000000	1026	0.375000
1027	0.000000	1027	0.000000
1028	0.000000	1028	0.000000
1029	0.000000	1029	0.000000
1030	120.000000	1030	-0.375000
1031	120.000000	1031	0.000000
1032	120.000000	1032	0.000000
1033	0.000000	1033	0.000000
1034	1567.000000	1034	0.000000
1035	0.000000	1035	-0.000000
1036	0.000000	1036	0.000000
1037	534.394000	1037	0.000000
1038	0.000000	1038	0.549107
1039	0.000000	1039	0.000000
1040	0.000000	1040	0.000000
1041	1567.000000	1041	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1042	1567.000000	1042	-0.549107
1043	1567.000000	1043	-0.000000
1044	534.394000	1044	0.000000
1045	5028.913000	1045	0.000000
1046	1975.509649	1046	0.000000
1047	1386.568649	1047	0.000000
1048	846.495649	1048	0.000000
1049	145.073000	1049	0.000000
1050	0.000000	1050	0.549107
1051	2384.059000	1051	0.000000
1052	0.000000	1052	0.000000
1053	6920.000000	1053	0.000000
1054	6920.000000	1054	-0.549107
1055	5319.059000	1055	0.000000
1056	5284.986000	1056	0.000000
1057	2477.729912	1057	0.000000
1058	2477.729912	1058	0.000000
1059	743.820218	1059	0.000000
1060	743.820218	1060	0.000000
1061	991.076164	1061	0.000000
1062	682.192407	1062	0.000000
1063	15298.765118	1063	0.000000
1064	9786.520959	1064	0.000000
1065	10834.271513	1065	0.000000
1066	9001.161229	1066	0.000000
1067	10000.000000	1067	-0.500000
1068	12729.755829	1068	0.000000
1069	13579.135482	1069	0.000000
1070	10149.056274	1070	0.000000
1071	4155.196895	1071	0.000000
1072	6231.356259	1072	0.000000
1073	4267.708305	1073	0.000000
1074	1793.623138	1074	0.000000
1075	4267.708305	1075	0.000000
1076	2643.164424	1076	0.000000
1077	4267.708305	1077	0.000000
1078	10000.000000	1078	-0.500000
1079	5821.073071	1079	0.000000
1080	10110.291782	1080	0.000000
1081	11985.935611	1081	0.000000
1082	134.540734	1082	0.000000
1083	122.399858	1083	0.000000
1084	120.169901	1084	0.000000
1085	148.911568	1085	0.000000
1086	182.608695	1086	0.000000
1087	221.013508	1087	0.000000
1088	232.906612	1088	0.000000
1089	240.092028	1089	0.000000
1090	240.092028	1090	0.000000

Continua na próxima página

Coordenada x	Valor x	Coordenada z	Valor z
1091	235.384342	1091	0.000000
1092	208.872632	1092	0.000000
1093	167.990088	1093	0.000000
1094	134.540734	1094	0.000000
1095	122.399858	1095	0.000000
1096	120.169901	1096	0.000000
1097	148.911568	1097	0.000000
1098	182.608695	1098	0.000000
1099	221.013508	1099	0.000000
1100	232.906612	1100	0.000000
1101	240.092028	1101	0.000000
1102	240.092028	1102	0.000000
1103	235.384342	1103	0.000000
1104	208.872632	1104	0.000000
1105	167.990088	1105	0.000000
1106	40.389438	1106	0.000000
1107	36.744719	1107	0.000000
1108	36.075281	1108	0.000000
1109	44.703595	1109	0.000000
1110	54.819550	1110	0.000000
1111	66.348763	1111	0.000000
1112	69.919100	1112	0.000000
1113	72.076179	1113	0.000000
1114	72.076179	1114	0.000000
1115	70.662921	1115	0.000000
1116	62.704044	1116	0.000000
1117	50.431011	1117	0.000000
1118	40.389438	1118	0.000000
1119	36.744719	1119	0.000000
1120	36.075281	1120	0.000000
1121	44.703595	1121	0.000000
1122	54.819550	1122	0.000000
1123	66.348763	1123	0.000000
1124	69.919100	1124	0.000000
1125	72.076179	1125	0.000000
1126	72.076179	1126	0.000000
1127	70.662921	1127	0.000000
1128	62.704044	1128	0.000000
1129	50.431011	1129	0.000000
1130	53.815436	1130	0.000000
1131	48.959163	1131	0.000000
1132	48.067194	1132	0.000000
1133	59.563677	1133	0.000000
1134	73.042313	1134	0.000000
1135	88.403994	1135	0.000000
1136	93.161159	1136	0.000000
1137	96.035280	1137	0.000000
1138	96.035280	1138	0.000000
1139	94.152236	1139	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1140	83.547721	1140	0.000000
1141	67.194964	1141	0.000000
1142	37.043048	1142	0.000000
1143	33.700305	1143	0.000000
1144	33.086332	1144	0.000000
1145	40.999764	1145	0.000000
1146	50.277580	1146	0.000000
1147	60.851563	1147	0.000000
1148	64.126086	1148	0.000000
1149	66.104444	1149	0.000000
1150	66.104444	1150	0.000000
1151	64.808279	1151	0.000000
1152	57.508820	1152	0.000000
1153	46.252645	1153	0.000000
1154	401.175050	1154	0.000000
1155	350.689125	1155	0.000000
1156	341.509866	1156	0.000000
1157	460.840234	1157	0.000000
1158	600.058997	1158	0.000000
1159	759.166154	1159	0.000000
1160	808.122202	1160	0.000000
1161	838.719733	1161	0.000000
1162	838.719733	1162	0.000000
1163	818.831338	1163	0.000000
1164	708.680229	1164	0.000000
1165	540.393813	1165	0.000000
1166	93.960838	1166	0.000000
1167	58.729363	1167	0.000000
1168	51.878798	1168	0.000000
1169	135.064226	1169	0.000000
1170	232.929436	1170	0.000000
1171	344.495775	1171	0.000000
1172	379.727250	1172	0.000000
1173	401.257596	1173	0.000000
1174	401.257596	1174	0.000000
1175	386.577815	1175	0.000000
1176	310.242952	1176	0.000000
1177	190.847396	1177	0.000000
1178	305.100943	1178	0.000000
1179	252.013013	1179	0.000000
1180	242.262168	1180	0.000000
1181	367.939718	1181	0.000000
1182	515.285810	1182	0.000000
1183	683.217019	1183	0.000000
1184	735.221522	1184	0.000000
1185	766.640910	1185	0.000000
1186	766.640910	1186	0.000000
1187	746.055794	1187	0.000000
1188	630.129089	1188	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1189	451.363609	1189	0.000000
1190	177.263055	1190	0.000000
1191	133.157365	1191	0.000000
1192	125.056320	1192	0.000000
1193	229.469790	1193	0.000000
1194	351.885583	1194	0.000000
1195	491.403582	1195	0.000000
1196	534.609156	1196	0.000000
1197	560.712523	1197	0.000000
1198	560.712523	1198	0.000000
1199	543.610317	1199	0.000000
1200	447.297892	1200	0.000000
1201	298.778731	1201	0.000000
1202	728.000000	1202	0.000000
1203	663.000000	1203	0.000000
1204	650.000000	1204	0.000000
1205	806.000000	1205	0.000000
1206	987.000000	1206	0.000000
1207	911.800000	1207	0.000000
1208	976.800000	1208	0.000000
1209	1015.800000	1209	0.000000
1210	1015.800000	1210	0.000000
1211	989.800000	1211	0.000000
1212	846.800000	1212	0.000000
1213	909.000000	1213	0.000000
1214	662.925742	1214	0.000000
1215	600.549938	1215	0.000000
1216	592.393158	1216	0.000000
1217	746.058325	1217	0.000000
1218	919.183005	1218	0.000000
1219	1116.494220	1219	0.000000
1220	1168.297048	1220	0.000000
1221	1205.213340	1221	0.000000
1222	1205.213340	1222	0.000000
1223	1181.026804	1223	0.000000
1224	1044.818416	1224	0.000000
1225	834.777445	1225	0.000000
1226	454.147057	1226	0.000000
1227	387.609293	1227	0.000000
1228	375.388071	1228	0.000000
1229	532.906042	1229	0.000000
1230	717.582285	1230	0.000000
1231	928.058885	1231	0.000000
1232	993.238735	1232	0.000000
1233	1032.618228	1233	0.000000
1234	1032.618228	1234	0.000000
1235	1006.817871	1235	0.000000
1236	861.521121	1236	0.000000
1237	637.465386	1237	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1238	154.693756	1238	0.000000
1239	104.963380	1239	0.000000
1240	95.829229	1240	0.000000
1241	213.558282	1241	0.000000
1242	351.585447	1242	0.000000
1243	508.895820	1243	0.000000
1244	557.611290	1244	0.000000
1245	587.043553	1245	0.000000
1246	587.043553	1246	0.000000
1247	567.760346	1247	0.000000
1248	459.165444	1248	0.000000
1249	291.706015	1249	0.000000
1250	159.930419	1250	0.000000
1251	143.309632	1251	0.000000
1252	139.985474	1252	0.000000
1253	183.590884	1253	0.000000
1254	243.544609	1254	0.000000
1255	281.262169	1255	0.000000
1256	297.882956	1256	0.000000
1257	307.855429	1257	0.000000
1258	307.855429	1258	0.000000
1259	301.207114	1259	0.000000
1260	264.225861	1260	0.000000
1261	207.299664	1261	0.000000
1262	221.121368	1262	0.000000
1263	200.557892	1263	0.000000
1264	196.819078	1264	0.000000
1265	245.423657	1265	0.000000
1266	302.128999	1266	0.000000
1267	366.935104	1267	0.000000
1268	386.875444	1268	0.000000
1269	399.338157	1269	0.000000
1270	399.338157	1270	0.000000
1271	391.237394	1271	0.000000
1272	346.371629	1272	0.000000
1273	277.826710	1273	0.000000
1274	177.963436	1274	0.000000
1275	162.172916	1275	0.000000
1276	159.185520	1276	0.000000
1277	197.168124	1277	0.000000
1278	241.979061	1278	0.000000
1279	292.764790	1279	0.000000
1280	308.555310	1280	0.000000
1281	317.944269	1281	0.000000
1282	317.944269	1282	0.000000
1283	311.542706	1283	0.000000
1284	276.974269	1284	0.000000
1285	222.774374	1285	0.000000
1286	18.194085	1286	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1287	11.557679	1287	0.000000
1288	10.302143	1288	0.000000
1289	29.065389	1289	0.000000
1290	45.098432	1290	0.000000
1291	66.442547	1291	0.000000
1292	73.078953	1292	0.000000
1293	77.024924	1293	0.000000
1294	77.024924	1294	0.000000
1295	74.334489	1295	0.000000
1296	59.806142	1296	0.000000
1297	37.027128	1297	0.000000
1298	177.963436	1298	0.000000
1299	162.172916	1299	0.000000
1300	159.185520	1300	0.000000
1301	197.168124	1301	0.000000
1302	241.979061	1302	0.000000
1303	292.764790	1303	0.000000
1304	308.555310	1304	0.000000
1305	317.944269	1305	0.000000
1306	317.944269	1306	0.000000
1307	311.542706	1307	0.000000
1308	276.974269	1308	0.000000
1309	222.774374	1309	0.000000
1310	25.219956	1310	0.000000
1311	15.440248	1311	0.000000
1312	60.590033	1312	0.000000
1313	37.114196	1313	0.000000
1314	64.867423	1314	0.000000
1315	96.321079	1315	0.000000
1316	106.100788	1316	0.000000
1317	111.915750	1317	0.000000
1318	111.915750	1318	0.000000
1319	107.951003	1319	0.000000
1320	86.541371	1320	0.000000
1321	52.973183	1321	0.000000
1322	177.963436	1322	0.000000
1323	162.172916	1323	0.000000
1324	159.185520	1324	0.000000
1325	197.168124	1325	0.000000
1326	241.979061	1326	0.000000
1327	292.764790	1327	0.000000
1328	308.555310	1328	0.000000
1329	317.944269	1329	0.000000
1330	317.944269	1330	0.000000
1331	311.542706	1331	0.000000
1332	276.974269	1332	0.000000
1333	222.774374	1333	0.000000
1334	543.000000	1334	0.000000
1335	494.000000	1335	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1336	485.000000	1336	0.000000
1337	601.000000	1337	0.000000
1338	737.000000	1338	0.000000
1339	892.000000	1339	0.000000
1340	940.000000	1340	0.000000
1341	969.000000	1341	0.000000
1342	969.000000	1342	0.000000
1343	950.000000	1343	0.000000
1344	843.000000	1344	0.000000
1345	678.000000	1345	0.000000
1346	152.138747	1346	0.000000
1347	130.600777	1347	0.000000
1348	126.526026	1348	0.000000
1349	178.333576	1349	0.000000
1350	239.454843	1350	0.000000
1351	308.725613	1351	0.000000
1352	330.263583	1352	0.000000
1353	343.069944	1353	0.000000
1354	343.069944	1354	0.000000
1355	334.338334	1355	0.000000
1356	287.187642	1356	0.000000
1357	213.260014	1357	0.000000
1358	192.191428	1358	0.000000
1359	154.791088	1359	0.000000
1360	159.711623	1360	0.000000
1361	211.692262	1361	0.000000
1362	255.848065	1362	0.000000
1363	268.766016	1363	0.000000
1364	306.174096	1364	0.000000
1365	328.416738	1365	0.000000
1366	328.416738	1366	0.000000
1367	313.251300	1367	0.000000
1368	231.357937	1368	0.000000
1369	236.351752	1369	0.000000
1370	622.536304	1370	0.000000
1371	563.805219	1371	0.000000
1372	556.317877	1372	0.000000
1373	701.354730	1373	0.000000
1374	864.363455	1374	0.000000
1375	1050.145457	1375	0.000000
1376	1098.377947	1376	0.000000
1377	1133.137161	1377	0.000000
1378	1133.137161	1378	0.000000
1379	1110.363883	1379	0.000000
1380	982.114372	1380	0.000000
1381	784.346434	1381	0.000000
1382	0.001501	1382	0.000000
1383	0.003001	1383	0.000000
1384	0.004502	1384	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1385	0.001501	1385	0.000000
1386	0.003001	1386	0.000000
1387	0.000000	1387	0.000000
1388	0.000000	1388	0.000000
1389	0.000000	1389	0.000000
1390	0.000000	1390	0.000000
1391	0.001501	1391	0.000000
1392	0.003001	1392	0.000000
1393	0.000000	1393	6.595320
1394	0.001501	1394	0.000000
1395	0.003001	1395	0.000000
1396	0.004502	1396	0.000000
1397	0.001501	1397	0.000000
1398	0.003001	1398	0.000000
1399	0.000000	1399	0.000000
1400	0.000000	1400	0.000000
1401	0.000000	1401	0.000000
1402	0.000000	1402	0.000000
1403	0.001501	1403	0.000000
1404	0.003001	1404	0.000000
1405	0.000000	1405	6.595320
1406	0.000768	1406	0.000000
1407	0.011537	1407	0.000000
1408	0.012305	1408	0.000000
1409	0.010768	1409	0.000000
1410	0.011537	1410	0.000000
1411	0.000000	1411	0.000000
1412	0.000000	1412	0.000000
1413	0.000000	1413	0.000000
1414	0.000000	1414	0.000000
1415	0.000768	1415	0.000000
1416	0.001537	1416	0.000000
1417	0.000000	1417	6.595320
1418	0.000768	1418	0.000000
1419	0.011537	1419	0.000000
1420	0.012305	1420	0.000000
1421	0.010768	1421	0.000000
1422	0.011537	1422	0.000000
1423	0.000000	1423	0.000000
1424	0.000000	1424	0.000000
1425	0.000000	1425	0.000000
1426	0.000000	1426	0.000000
1427	0.000768	1427	0.000000
1428	0.001537	1428	0.000000
1429	0.000000	1429	6.595320
1430	0.000198	1430	0.000000
1431	0.005198	1431	0.000000
1432	0.000198	1432	0.000000
1433	0.005396	1433	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1434	0.000396	1434	0.000000
1435	0.000000	1435	0.000000
1436	0.000000	1436	0.000000
1437	0.000000	1437	0.000000
1438	0.000000	1438	0.000000
1439	0.005000	1439	0.000000
1440	0.000000	1440	9.881118
1441	0.005198	1441	0.000000
1442	0.012086	1442	0.000000
1443	0.022086	1443	0.000000
1444	0.022086	1444	0.000000
1445	0.024173	1445	0.000000
1446	0.034173	1446	0.000000
1447	0.000000	1447	0.000000
1448	0.000000	1448	0.000000
1449	0.000000	1449	0.000000
1450	0.000000	1450	0.000000
1451	0.000000	1451	19.762237
1452	0.010000	1452	0.000000
1453	0.012086	1453	0.000000
1454	0.006691	1454	0.000000
1455	0.016691	1455	0.000000
1456	0.016691	1456	0.000000
1457	0.013381	1457	0.000000
1458	0.023381	1458	0.000000
1459	0.000000	1459	0.000000
1460	0.000000	1460	0.000000
1461	0.000000	1461	0.000000
1462	0.000000	1462	0.000000
1463	0.000000	1463	29.474945
1464	0.010000	1464	0.000000
1465	0.006691	1465	0.000000
1466	0.007739	1466	0.000000
1467	0.000000	1467	5.372705
1468	0.002261	1468	0.000000
1469	0.003218	1469	0.000000
1470	0.005479	1470	0.000000
1471	0.000000	1471	0.000000
1472	0.000000	1472	0.000000
1473	0.000000	1473	0.000000
1474	0.000000	1474	0.000000
1475	0.002261	1475	0.000000
1476	0.004521	1476	0.000000
1477	0.005479	1477	0.000000
1478	0.016187	1478	0.000000
1479	0.016187	1479	0.000000
1480	0.016187	1480	0.000000
1481	0.022374	1481	0.000000
1482	0.032374	1482	0.000000

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Coordenada x	Valor x	Coordenada z	Valor z
1483	0.000000	1483	0.000000
1484	0.000000	1484	0.000000
1485	0.000000	1485	0.000000
1486	0.000000	1486	0.000000
1487	0.000000	1487	19.762237
1488	0.010000	1488	0.000000
1489	0.006187	1489	0.000000
1490	0.005396	1490	0.000000
1491	0.005396	1491	0.000000
1492	0.005396	1492	0.000000
1493	0.010791	1493	0.000000
1494	0.010791	1494	0.000000
1495	0.000000	1495	0.000000
1496	0.000000	1496	0.000000
1497	0.000000	1497	0.000000
1498	0.000000	1498	0.000000
1499	0.000000	1499	0.000000
1500	0.000000	1500	9.881118
1501	0.005396	1501	0.000000
1502	128.782220	1502	0.000000
1503	161.007780	1503	0.000000
1504	193.233340	1504	0.000000
1505	225.348880	1505	0.000000
1506	257.574440	1506	0.000000
1507	0.000000	1507	0.000000
1508	0.000000	1508	0.000000
1509	0.000000	1509	0.000000
1510	0.000000	1510	0.000000
1511	32.225560	1511	0.000000
1512	64.451120	1512	0.000000
1513	96.556660	1513	0.000000
1514	0.000768	1514	0.000000
1515	0.011537	1515	0.000000
1516	0.012305	1516	0.000000
1517	0.010768	1517	0.000000
1518	0.011537	1518	0.000000
1519	0.000000	1519	0.000000
1520	0.000000	1520	0.000000
1521	0.000000	1521	0.000000
1522	0.000000	1522	0.000000
1523	0.000768	1523	0.000000
1524	0.001537	1524	0.000000
1525	0.000000	1525	6.595320
1526	0.007199	1526	0.000000
1527	0.000000	1527	3.955293
1528	0.002801	1528	0.000000
1529	0.001598	1529	0.000000
1530	0.004399	1530	0.000000
1531	0.000000	1531	0.000000

Continua na próxima página



Coordenada x	Valor x	Coordenada z	Valor z
1532	0.000000	1532	0.000000
1533	0.000000	1533	0.000000
1534	0.000000	1534	0.000000
1535	0.002801	1535	0.000000
1536	0.005601	1536	0.000000
1537	0.004399	1537	0.000000
1538	0.017986	1538	0.000000
1539	0.017986	1539	0.000000
1540	0.027986	1540	0.000000
1541	0.025971	1541	0.000000
1542	0.035971	1542	0.000000
1543	0.000000	1543	0.000000
1544	0.000000	1544	0.000000
1545	0.000000	1545	0.000000
1546	0.000000	1546	0.000000
1547	0.000000	1547	19.762237
1548	0.010000	1548	0.000000
1549	0.007986	1549	0.000000
1550	0.003795	1550	0.000000
1551	0.008795	1551	0.000000
1552	0.003795	1552	0.000000
1553	0.012590	1553	0.000000
1554	0.007590	1554	0.000000
1555	0.000000	1555	0.000000
1556	0.000000	1556	0.000000
1557	0.000000	1557	0.000000
1558	0.000000	1558	0.000000
1559	0.005000	1559	0.000000
1560	0.000000	1560	11.832639
1561	0.008795	1561	0.000000
1562	0.005534	1562	0.000000
1563	0.001068	1563	0.000000
1564	0.006603	1564	0.000000
1565	0.005534	1565	0.000000
1566	0.001068	1566	0.000000
1567	0.000000	1567	0.000000
1568	0.000000	1568	0.000000
1569	0.000000	1569	0.000000
1570	0.000000	1570	0.000000
1571	0.005534	1571	0.000000
1572	0.001068	1572	0.000000
1573	0.000000	1573	9.836776
1574	0.007739	1574	0.000000
1575	0.000000	1575	5.143180
1576	0.002261	1576	0.000000
1577	0.003218	1577	0.000000
1578	0.005479	1578	0.000000
1579	0.000000	1579	0.000000
1580	0.000000	1580	0.000000

Continua na próxima página

Coordenada x	Valor x	Coordenada z	Valor z
1581	0.000000	1581	0.000000
1582	0.000000	1582	0.000000
1583	0.002261	1583	0.000000
1584	0.004521	1584	0.000000
1585	0.005479	1585	0.000000
1586	0.007896	1586	0.000000
1587	0.002896	1587	0.000000
1588	0.007896	1588	0.000000
1589	0.010791	1589	0.000000
1590	0.005791	1590	0.000000
1591	0.000000	1591	0.000000
1592	0.000000	1592	0.000000
1593	0.000000	1593	0.000000
1594	0.000000	1594	0.000000
1595	0.005000	1595	0.000000
1596	0.000000	1596	12.848701
1597	0.002896	1597	0.000000
1598	0.007739	1598	0.000000
1599	0.000000	1599	5.143180
1600	0.002261	1600	0.000000
1601	0.003218	1601	0.000000
1602	0.005479	1602	0.000000
1603	0.000000	1603	0.000000
1604	0.000000	1604	0.000000
1605	0.000000	1605	0.000000
1606	0.000000	1606	0.000000
1607	0.002261	1607	0.000000
1608	0.004521	1608	0.000000
1609	0.005479	1609	0.000000
1610	0.000768	1610	0.000000
1611	0.011537	1611	0.000000
1612	0.012305	1612	0.000000
1613	0.010768	1613	0.000000
1614	0.011537	1614	0.000000
1615	0.000000	1615	0.000000
1616	0.000000	1616	0.000000
1617	0.000000	1617	0.000000
1618	0.000000	1618	0.000000
1619	0.000768	1619	0.000000
1620	0.001537	1620	0.000000
1621	0.000000	1621	8.576084
1622	0.007739	1622	0.000000
1623	0.000000	1623	5.143180
1624	0.002261	1624	0.000000
1625	0.003218	1625	0.000000
1626	0.005479	1626	0.000000
1627	0.000000	1627	0.000000
1628	0.000000	1628	0.000000
1629	0.000000	1629	0.000000

Continua na próxima página

Coordenada x	Valor x	Coordenada z	Valor z
1630	0.000000	1630	0.000000
1631	0.002261	1631	0.000000
1632	0.004521	1632	0.000000
1633	0.005479	1633	0.000000
1634	1634.838900	1634	0.000000
1635	2043.911100	1635	0.000000
1636	2452.993300	1636	0.000000
1637	2860.595600	1637	0.000000
1638	3269.667800	1638	0.000000
1639	0.000000	1639	0.000000
1640	0.000000	1640	0.000000
1641	0.000000	1641	0.000000
1642	0.000000	1642	0.000000
1643	409.072200	1643	0.000000
1644	818.154400	1644	0.000000
1645	1225.756700	1645	0.000000
1646	0.007739	1646	0.000000
1647	0.000000	1647	5.143180
1648	0.002261	1648	0.000000
1649	0.003218	1649	0.000000
1650	0.005479	1650	0.000000
1651	0.000000	1651	0.000000
1652	0.000000	1652	0.000000
1653	0.000000	1653	0.000000
1654	0.000000	1654	0.000000
1655	0.002261	1655	0.000000
1656	0.004521	1656	0.000000
1657	0.005479	1657	0.000000
1658	0.007739	1658	0.000000
1659	0.000000	1659	0.428941
1660	0.002261	1660	0.000000
1661	0.003218	1661	0.000000
1662	0.005479	1662	0.000000
1663	0.000000	1663	0.000000
1664	0.000000	1664	0.000000
1665	0.000000	1665	0.000000
1666	0.000000	1666	0.000000
1667	0.002261	1667	0.000000
1668	0.004521	1668	0.000000
1669	0.005479	1669	0.000000
1670	-0.000000	1670	0.000000
1671	-0.000000	1671	0.000000
1672	-0.000000	1672	0.000000
1673	-0.000000	1673	0.000000
1674	-0.000000	1674	0.000000
1675	0.000000	1675	0.000000
1676	0.000000	1676	0.000000
1677	0.000000	1677	0.000000
1678	0.000000	1678	0.000000

Continua na próxima página

Coordenada x	Valor x	Coordenada z	Valor z
1679	-0.000000	1679	0.000000
1680	-0.000000	1680	0.000000
1681	0.000000	1681	6.595320

### 3 Variáveis Duais (Multiplicadores de Lagrange)

Tabela 2: Variáveis duais do problema ganges

Coordenada y	Valor y
1	-0.000000
2	-0.000000
3	-0.000000
4	-0.000000
5	-0.000000
6	-0.000000
7	-0.000000
8	-0.000000
9	-0.000000
10	-0.000000
11	-0.000000
12	-0.000000
13	-0.000000
14	-0.000000
15	-0.000000
16	-0.000000
17	-0.000000
18	-0.000000
19	-0.000000
20	-0.000000
21	-0.000000
22	-0.000000
23	-0.000000
24	-0.000000
25	-0.000000
26	-0.000000
27	-0.000000
28	-0.000000
29	-0.000000
30	-0.000000
31	-0.000000
32	-0.000000
33	-0.000000
34	-0.000000
35	-0.000000
36	-0.000000
37	-0.000000

Continua na próxima página

Coordenada y	Valor y
38	-0.000000
39	-0.000000
40	-0.000000
41	-0.000000
42	-0.000000
43	-0.000000
44	-0.000000
45	-0.000000
46	-0.000000
47	-0.000000
48	-0.000000
49	-0.000000
50	-0.000000
51	-0.000000
52	-0.000000
53	-0.000000
54	-0.000000
55	-0.000000
56	-0.000000
57	-0.000000
58	-0.000000
59	-0.000000
60	-0.000000
61	-0.000000
62	-0.000000
63	-0.000000
64	-0.000000
65	-0.000000
66	-0.000000
67	-0.000000
68	-0.000000
69	-0.000000
70	-0.000000
71	-0.000000
72	-0.000000
73	-0.000000
74	-0.000000
75	-0.000000
76	-0.000000
77	-0.000000
78	-0.000000
79	-0.000000
80	-0.000000
81	-0.000000
82	-0.000000
83	-0.000000
84	-0.000000
85	-0.000000
86	-0.000000
Continua na próxima página	

Coordenada y	Valor y
87	-0.000000
88	-0.000000
89	-0.000000
90	-0.000000
91	-0.000000
92	-0.000000
93	-0.000000
94	-0.000000
95	-0.000000
96	-0.000000
97	-0.000000
98	-0.000000
99	-0.000000
100	-0.000000
101	-0.000000
102	-0.000000
103	-0.000000
104	-0.000000
105	-0.000000
106	-0.000000
107	-0.000000
108	-0.000000
109	-0.000000
110	-0.000000
111	-0.000000
112	-0.000000
113	-0.000000
114	-0.000000
115	-0.000000
116	-0.000000
117	-0.000000
118	-0.000000
119	-0.000000
120	-0.000000
121	-0.000000
122	-0.000000
123	-0.000000
124	-0.000000
125	-0.000000
126	-0.000000
127	-0.000000
128	-0.000000
129	-0.000000
130	-0.000000
131	-0.000000
132	-0.000000
133	-0.000000
134	-0.000000
135	-0.000000
Continua na próxima página	

Coordenada y	Valor y
136	-0.000000
137	-0.000000
138	-0.000000
139	-0.000000
140	-0.000000
141	-0.000000
142	-0.000000
143	-0.000000
144	-0.000000
145	-0.000000
146	-0.000000
147	-0.000000
148	-0.000000
149	-0.000000
150	-0.000000
151	-0.000000
152	-0.000000
153	-0.000000
154	-0.000000
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157	-0.000000
158	-0.000000
159	-0.000000
160	-0.000000
161	-0.000000
162	-0.000000
163	-0.000000
164	-0.000000
165	-0.000000
166	-0.000000
167	-0.000000
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169	-0.000000
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171	-0.000000
172	-0.000000
173	-0.000000
174	-0.000000
175	-0.000000
176	-0.000000
177	-0.000000
178	-0.000000
179	-0.000000
180	-0.000000
181	-0.000000
182	-0.000000
183	-0.000000
184	-0.000000
Continua na próxima página	

Coordenada y	Valor y
185	-0.000000
186	-0.000000
187	-0.000000
188	-0.000000
189	-0.000000
190	-0.000000
191	-0.000000
192	-0.000000
193	-0.000000
194	-0.000000
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196	-0.000000
197	-0.000000
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199	-0.000000
200	-0.000000
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210	-0.000000
211	-0.000000
212	-0.000000
213	-0.000000
214	-0.000000
215	-0.000000
216	-0.000000
217	-0.000000
218	-0.000000
219	-0.549390
220	-0.549390
221	-0.549390
222	-0.549390
223	-0.000000
224	-0.000000
225	-0.000000
226	-0.000000
227	-0.000000
228	-0.000000
229	-0.000000
230	-0.000000
231	-0.000000
232	-0.000000
233	-0.000000
Continua na próxima página	



Coordenada y	Valor y
234	-0.000000
235	-0.000000
236	-0.000000
237	-0.000000
238	-0.000000
239	-0.000000
240	-0.000000
241	-0.000000
242	-0.000000
243	-0.000000
244	-0.000000
245	-0.000000
246	-0.000000
247	-0.000000
248	-0.000000
249	-0.000000
250	-0.000000
251	-0.000000
252	-0.000000
253	-0.000000
254	-0.000000
255	-0.000000
256	-0.000000
257	-0.000000
258	-0.000000
259	-0.000000
260	-0.000000
261	-0.000000
262	-0.000000
263	-0.000000
264	-0.000000
265	-0.000000
266	-0.000000
267	-0.000000
268	-0.000000
269	-0.000000
270	-0.000000
271	-0.000000
272	-0.000000
273	-0.000000
274	-0.000000
275	-0.000000
276	-0.000000
277	-0.000000
278	-0.000000
279	-0.000000
280	-0.000000
281	-0.000000
282	-0.000000
Continua na próxima página	

Coordenada y	Valor y
283	-0.000000
284	-0.000000
285	-0.000000
286	-0.000000
287	-0.000000
288	-0.000000
289	-0.000000
290	-0.000000
291	-0.000000
292	-0.000000
293	-0.000000
294	-0.000000
295	-0.000000
296	-0.000000
297	-0.000000
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317	-0.000000
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324	-0.000000
325	-0.000000
326	-0.000000
327	-0.000000
328	-0.000000
329	-0.000000
330	-0.000000
331	-0.000000
Continua na próxima página	

Coordenada y	Valor y
332	-0.000000
333	-0.000000
334	-0.000000
335	-0.000000
336	-0.000000
337	-0.000000
338	-0.000000
339	-0.000000
340	-0.657895
341	-0.657895
342	-0.000000
343	-0.000000
344	-0.000000
345	-0.000000
346	-0.000000
347	-0.000000
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366	-0.000000
367	-0.000000
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373	-0.000000
374	-0.000000
375	-0.000000
376	-0.000000
377	-0.000000
378	-0.000000
379	-0.000000
380	-0.000000
Continua na próxima página	

Coordenada y	Valor y
381	-0.000000
382	-0.000000
383	-0.000000
384	-0.000000
385	-0.000000
386	-0.000000
387	-0.000000
388	-0.000000
389	-0.000000
390	-0.000000
391	-0.000000
392	-0.000000
393	-0.000000
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402	-0.000000
403	-0.000000
404	-0.000000
405	-0.000000
406	-0.000000
407	-0.000000
408	-0.000000
409	-0.000000
410	-0.000000
411	-0.714388
412	-0.714388
413	-0.714388
414	-0.000000
415	-0.000000
416	-0.000000
417	-0.000000
418	-0.000000
419	-0.000000
420	-0.000000
421	0.375000
422	-0.375000
423	0.375000
424	-0.375000
425	0.375000
426	-1.089388
427	0.375000
428	-1.089388
429	0.375000
Continua na próxima página	

Coordenada y	Valor y
430	-1.089388
431	0.375000
432	-0.375000
433	-0.000000
434	-0.000000
435	-0.000000
436	-0.000000
437	-0.000000
438	-0.000000
439	-0.000000
440	-0.000000
441	0.375000
442	-0.375000
443	0.375000
444	-0.375000
445	-0.000000
446	-0.000000
447	-0.000000
448	-0.000000
449	-0.000000
450	-0.000000
451	-0.000000
452	-0.000000
453	-0.000000
454	-0.000000
455	-0.000000
456	-0.000000
457	-0.000000
458	-0.714388
459	-0.714388
460	-0.714388
461	-0.714388
462	-0.000000
463	-0.000000
464	-0.000000
465	-0.000000
466	-0.000000
467	-0.000000
468	-0.000000
469	0.375000
470	-0.375000
471	0.375000
472	-1.089388
473	0.375000
474	-1.089388
475	0.375000
476	-1.089388
477	0.375000
478	-1.089388

Continua na próxima página

Coordenada y	Valor y
479	0.375000
480	-0.375000
481	-0.000000
482	-0.000000
483	-0.000000
484	-0.000000
485	-0.000000
486	-0.000000
487	-0.000000
488	-0.000000
489	0.375000
490	-0.375000
491	0.375000
492	-0.375000
493	-0.000000
494	-0.000000
495	-0.000000
496	-0.000000
497	-0.000000
498	-0.000000
499	-0.000000
500	-0.000000
501	-0.000000
502	-0.000000
503	-0.000000
504	-0.000000
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506	-0.000000
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509	-0.000000
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520	-0.000000
521	-0.000000
522	-0.000000
523	-0.000000
524	-0.000000
525	-0.000000
526	-0.000000
527	-0.000000
Continúa na próxima página	

Coordenada y	Valor y
528	-0.000000
529	0.549107
530	-0.549107
531	0.549107
532	-0.549107
533	0.549107
534	-0.549107
535	0.549107
536	-0.549107
537	0.549107
538	-0.549107
539	0.549107
540	-0.549107
541	-0.000000
542	-0.000000
543	-0.000000
544	-0.000000
545	-0.000000
546	-0.000000
547	-0.000000
548	-0.000000
549	0.549107
550	-0.549107
551	0.549107
552	-0.549107
553	0.000000
554	-0.549107
555	-0.000000
556	-0.549107
557	-0.000000
558	-0.549107
559	-0.000000
560	-0.549107
561	-0.000000
562	-0.549107
563	-0.000000
564	-0.549107
565	-0.000000
566	-0.000000
567	-0.000000
568	-0.000000
569	-0.000000
570	-0.000000
571	-0.000000
572	-0.000000
573	-0.000000
574	-0.549107
575	-0.000000
576	-0.549107

Continua na próxima página

Coordenada y	Valor y
577	-0.000000
578	-0.549107
579	-0.000000
580	-0.549107
581	-0.000000
582	-0.549107
583	-0.000000
584	-0.549107
585	-0.000000
586	-0.549107
587	-0.000000
588	-0.549107
589	-0.000000
590	-0.000000
591	-0.000000
592	-0.000000
593	-0.000000
594	-0.000000
595	-0.000000
596	-0.000000
597	-0.000000
598	-0.549107
599	-0.000000
600	-0.549107
601	-0.714388
602	-0.714388
603	-0.714388
604	-0.714388
605	-0.714388
606	-0.000000
607	-0.000000
608	-0.000000
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625	-0.714388

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Continua na próxima página

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Coordenada y	Valor y
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674	0.549390

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Continua na próxima página

Coordenada y	Valor y
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722	0.549390
723	0.549390
Continua na próxima página	

Coordenada y	Valor y
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740	0.549390
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748	0.819403
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766	0.746269
767	0.746269
768	0.746269
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772	0.549390

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Continua na próxima página

Coordenada y	Valor y
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820	0.549390
821	0.549390
Continua na próxima página	

Coordenada y	Valor y
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825	0.549390
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843	0.657895
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845	0.657895
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847	0.657895
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849	0.657895
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865	0.714388
866	0.714388
867	0.714388
868	0.714388
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870	0.714388
Continua na próxima página	

Coordenada y	Valor y
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900	0.714388
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914	0.714388
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916	0.714388
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918	0.714388
919	0.714388
Continua na próxima página	

Coordenada y	Valor y
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922	0.714388
923	0.714388
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940	0.714388
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949	0.714388
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967	0.549390
968	0.549390

Continua na próxima página

Coordenada y	Valor y
969	0.549390
970	0.549390
971	0.549390
972	0.549390
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974	-0.000000
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976	-0.000000
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979	-0.000000
980	-0.000000
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983	-0.000000
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985	-0.000000
986	-0.000000
987	-0.000000
988	-0.000000
989	-0.000000
990	-0.000000
991	-0.000000
992	-0.000000
993	-0.000000
994	-0.000000
995	-0.000000
996	-6.595320
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998	-0.000000
999	-0.000000
1000	-0.000000
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1002	-0.000000
1003	-0.000000
1004	-0.000000
1005	-0.000000
1006	-0.000000
1007	-0.000000
1008	-6.595320
1009	-0.000000
1010	-0.000000
1011	-0.000000
1012	-0.000000
1013	-0.000000
1014	-0.000000
1015	-0.000000
1016	-0.000000
1017	-0.000000

Continua na próxima página



Coordenada y	Valor y
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1019	-0.000000
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1023	-0.000000
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1033	-0.000000
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1041	-0.000000
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1066	-0.000000

Continua na próxima página

Coordenada y	Valor y
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1070	-0.000000
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1072	-0.000000
1073	-0.000000
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1076	-0.000000
1077	-0.000000
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1089	-0.000000
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1091	-9.881118
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1104	-0.000000
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1107	-0.000000
1108	-0.000000
1109	-0.000000
1110	-0.000000
1111	-0.000000
1112	-0.000000
1113	-0.000000
1114	-0.000000
1115	-0.000000
Continua na próxima página	

Coordenada y	Valor y
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1118	-3.955293
1119	-0.000000
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1121	-0.000000
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1123	-0.000000
1124	-0.000000
1125	-0.000000
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1136	-0.000000
1137	-0.000000
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1163	-0.000000
1164	-9.836776

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Continúa na próxima página

Coordenada y	Valor y
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1166	-5.143180
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1186	-0.000000
1187	-12.848701
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1189	-0.000000
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1211	-0.000000
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Continúa na próxima página

Coordenada y	Valor y
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1233	-0.000000
1234	-0.000000
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1236	-0.000000
1237	-0.000000
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1253	-0.714388
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1257	-0.000000
1258	-0.000000
1259	-0.000000
1260	-0.714388
1261	-0.000000
1262	-0.000000

Continúa na próxima página

Coordenada y	Valor y
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1265	-0.000000
1266	-0.000000
1267	-0.000000
1268	-0.000000
1269	-0.000000
1270	-0.000000
1271	-0.000000
1272	-6.595320
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1303	-1250.000000
1304	-1250.000000
1305	-1250.000000
1306	-1250.000000
1307	-1227.678571
1308	-1250.000000
1309	-1250.000000

## 4 Observações

- O solver HiGHS foi configurado com o método IPM (Interior Point Method).
- Este arquivo contém a solução detalhada para o problema ganges.
- As variáveis duais representam os multiplicadores de Lagrange das restrições.
- Os custos reduzidos ( $z$ ) indicam o impacto de forçar variáveis não-básicas na base.