LISTATO DI CALCOLO – FASE 1 – SEZ B – COESIONE 0

RICERCA SUPERFICIE CRITICA CIRCOLARE

Analisi di stabilità dei pendii con: JANBU (1956)

Lat./Long.	44.416126/9.128522
Normativa	NTC 2008
Numero di strati	4.0
Numero dei conci	25.0
Grado di sicurezza ritenuto accettabile	1.1
Coefficiente parziale resistenza	1.1
Analisi	Condizione drenata
Superficie di forma circolare	

Maglia dei Centri

Ascissa vertice sinistro inferiore xi	0.0 m
Ordinata vertice sinistro inferiore yi	80.0 m
Ascissa vertice destro superiore xs	160.0 m
Ordinata vertice destro superiore ys	350.0 m
Passo di ricerca	10.0
Numero di celle lungo x	20.0
Numero di celle lungo y	20.0

Coefficienti sismici [N.T.C.]

Dati generali

Tipo opera:	2 - Opere ordinarie
Classe d'uso:	Classe I
Vita nominale:	50.0 [anni]
Vita di riferimento:	35.0 [anni]

Parametri sismici su sito di riferimento

Categoria sottosuolo:	C
Categoria topografica:	T3

S.L. Stato limite	TR Tempo ritorno [anni]	ag [m/s²]	F0 [-]	TC* [sec]
S.L.O.	30.0	0.27	2.5	0.2
S.L.D.	35.0	0.29	2.52	0.2
S.L.V.	332.0	0.73	2.53	0.28
S.L.C.	682.0	0.96	2.5	0.29

Coefficienti sismici orizzontali e verticali

Opera: Stabilità dei pendii e Fondazioni

S.L. Stato limite	amax [m/s²]	beta [-]	kh [-]	kv [sec]
S.L.O.	0.486	0.2	0.0099	0.005
S.L.D.	0.522	0.2	0.0106	0.0053
S.L.V.	1.314	0.2	0.0268	0.0134
S.L.C.	1.728	0.2	0.0352	0.0176

Coefficiente azione sismica orizzontale	0.027
Coefficiente azione sismica verticale	0.01 3

Vertici profilo

N	X m	y m

1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	45.76	19.5
6	66.3	20.09
7	84.13	24.8
8	94.39	25.65
9	115.64	40.28
10	127.18	40.28
11	144.91	55.0
12	150.25	55.0
13	172.03	70.0
14	176.27	70.0
15	201.62	74.54
16	205.25	74.53
17	219.84	84.0
18	225.33	84.4
19	235.28	90.03
20	271.64	88.91
21	282.7	88.53
22	289.11	88.6 8

Falda

Nr.	X (m)	y (m)
1	-0.3	-0.52
2	39.1	10.3
3	82.12	14.39
4	121.91	24.44
5	159.28	41.98
6	179.86	58.11
7	202.99	68.81
8	231.62	74.84
9	257.74	77.35
10	289.64	80.6 2

Vertici strato 1

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	37.68	12.99
7	64.06	13.96
8	76.83	15.78
9	98.11	17.87
10	110.05	22.38
11	132.06	29.02
12	146.92	36.18
13	155.14	41.22
14	161.51	46.52
15	169.47	50.77
16	178.51	60.13
17	197.55	68.85
18	208.25	71.0
19	228.49	80.0
20	272.76	88.87
21	282.7	88.53
22	289.11	88.6 8

Vertici strato 2

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.27
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	38.56	12.1
7	64.37	12.92
8	76.19	14.76
9	85.97	15.84
10	98.38	17.08
11	110.84	21.59
12	132.6	28.22
13	147.98	36.18
14	153.82	40.16
15	162.57	45.73
16	169.2	49.18
17	174.21	54.9
18	178.51	59.23
19	197.94	67.72
20	212.1	70.67
21	223.0	75.35
22	230.56	77.31
23	262.24	80.63
24	281.0	81.67
25	289.11	83.6 9

Vertici strato 3

N	X (m)	y (m)
1	0.0	0.0
2	26.2	17.22
3	29.65	17.44
4	33.37	16.92
5	36.74	13.96
6	42.18	8.4
7	65.63	9.78
8	79.0	11.82
9	93.34	13.63
10	132.33	25.3
11	147.96	31.81
12	159.17	38.21
13	167.34	43.58
14	176.99	52.15
15	182.36	55.06
16	192.72	59.7
17	209.83	66.16
18	232.16	72.24
19	275.95	77.07
20	289.11	79.45

Coefficienti parziali per i parametri geotecnici del terreno

Tangente angolo di resistenza al taglio	1.25
Coesione efficace	1.25
Coesione non drenata	1.4
Riduzione parametri geotecnici terreno	Si

Stratigrafia

c: coesione; cu: coesione non drenata; Fi: Angolo di attrito; G: Peso Specifico; Gs: Peso Specifico Saturo; K: Modulo di Winkler

Strato	c	cu	Fi	G	Gs	K	Litologia	

	(kg/cm²)	(kg/cm²)	(°)	(Kg/m³)	(Kg/m³)	(Kg/cm³)		
1	0		29.60	1837	2063	0.00		
2	0		26.51	1695	1905	0.00		
3	0.3305		30.52	2402	2698	0.00		
4	0.4352		33.31	2402	2698	0.00		

Risultati analisi pendio [NTC 2008: [A2+M2+R2]]

Fs minimo individuato	0.7
Ascissa centro superficie	136.0 m
Ordinata centro superficie	107.0 m
Raggio superficie	52.45 m

Numero di superfici esaminate....(786)

N°	Xo	Yo	Ro	Fs
1	0.0	80.0	72.2	3.13
2	4.0	86.8	78.6	2.88
3	8.0	80.0	72.6	2.62
4	12.0	86.8	79.3	2.79
5	16.0	80.0	73.7	2.91
6	20.0	86.8	80.6	3.21
7	24.0	80.0	67.3	4.49
8	28.0	86.8	82.1	3.59
9	32.0	80.0	75.9	3.79
10	36.0	86.8	82.1	3.94
11	40.0	80.0	67.8	5.51
12	44.0	86.8	73.4	4.99
13	48.0	80.0	67.8	4.60
14	52.0	86.8	73.3	3.55
15	56.0	80.0	75.9	3.21
16	60.0	86.8	73.3	1.89
17	64.0	80.0	59.8	1.81
18	68.0	86.8	73.2	1.76
19	72.0	80.0	59.9	1.18
20	76.0	86.8	64.4	0.97
21	80.0	80.0	59.9	1.14
22	84.0	86.8	64.4	1.11
23	88.0	80.0	52.0	0.89
24	92.0	86.8	64.3	1.01
25	96.0	80.0	60.0	1.03
26	100.0	86.8	64.3	1.01
27	104.0	80.0	52.1	0.99
28	108.0	86.8	55.4	0.99
29	112.0	80.0	43.9	0.95
30	116.0	86.8	46.4	0.72
31	120.0	80.0	42.5	0.93
32	124.0	86.8	46.3	0.81
33	128.0	80.0	35.2	0.86
34	132.0	86.8	45.4	0.85
35	136.0	80.0	34.9	0.88
36	140.0	86.8	37.2	0.86
37	144.0	80.0	26.3	0.84
38	148.0	86.8	37.1	1.01
39	152.0	80.0	25.9	0.85
40	156.0	86.8	28.1	0.93
41	160.0	80.0	25.5	1.13
42	4.0	100.3	90.5	3.48
43	12.0	100.3	91.1	3.16
44	20.0	100.3	92.3	3.51

45	24.0	93.5	77.8	8.77
46	28.0	100.3	83.9	8.79
47	32.0	93.5	88.0	3.80
48	36.0	100.3	94.1	4.01
49	40.0	93.5	88.0	4.17
50	44.0	100.3	94.2	3.45
51	48.0	93.5	78.5	3.76
52	52.0	100.3	94.2	2.93
53	56.0	93.5	78.4	2.67
54	60.0	100.3	84.2	1.68
55	64.0	93.5	78.4	1.58
56	68.0	100.3	84.3	1.44
57	72.0	93.5	78.3	1.38
58	76.0	100.3	74.4	0.84
59	80.0	93.5	68.6	0.90
60	84.0	100.3	74.4	1.02
61	88.0	93.5	68.6	0.97
62	92.0	100.3	74.5	0.94
63	96.0	93.5	68.5	0.96
64	100.0	100.3	74.6	0.95
65	104.0	93.5	58.7	0.95
66	108.0	100.3	64.8	0.93
67	112.0	93.5	58.6	0.95
68	116.0	100.3	64.9	0.90
69	120.0	93.5	58.5	0.92
70	124.0	100.3	55.3	0.83
71	128.0	93.5	48.8	0.83
72	132.0	100.3	55.4	0.87
73	136.0	93.5	48.8	0.90
74	140.0	100.3	55.5	1.01
75	144.0	93.5	39.1	0.78
76	148.0	100.3	43.2	0.89
77	152.0	93.5	39.3	1.01
78	156.0	100.3	42.8	1.15
79	160.0	93.5	29.8	1.11
80	0.0	107.0	97.2	3.98
81	8.0	107.0	97.5	3.20
82	12.0	113.8	104.5	3.25
83	16.0	107.0	98.3	3.32
84	20.0	113.8	105.6	3.65
85	28.0	113.8	97.0	10.19
86	32.0	107.0	90.8	7.25
87	36.0	113.8	107.6	3.57
88	40.0	107.0	100.9	3.50
89	44.0	113.8	97.6	4.31
90	48.0	107.0	100.9	2.99
91	52.0	113.8	107.7	2.66
92	56.0	107.0	90.9	1.87
93	60.0	113.8	97.7	1.54
94	64.0	107.0	91.0	1.49
95	68.0	113.8	97.8	1.29
96	72.0	107.0	91.0	1.23
97	76.0	113.8	87.9	0.99
98	80.0	107.0	81.1	1.03
99	84.0	113.8	87.9	0.93
100	88.0	107.0	81.2	0.93
101	92.0	113.8	88.0	0.92
102	96.0	107.0	81.3	0.93
103	100.0	113.8	88.1	0.92
104	104.0	107.0	71.5	0.92
105	108.0	113.8	78.3	0.87
106	112.0	107.0	71.6	0.88
107	116.0	113.8	68.6	0.88

108	120.0	107.0	61.9	0.84
109	124.0	113.8	68.8	0.84
110	128.0	107.0	62.1	0.85
111	132.0	113.8	68.9	0.96
112	136.0	107.0	52.5	0.70
113	140.0	113.8	58.0	0.86
114	144.0	107.0	50.6	0.87
115	148.0	113.8	55.4	1.03
116	152.0	107.0	48.0	1.07
117	156.0	113.8	52.7	1.28
118	160.0	107.0	45.3	1.35
119	4.0	127.3	117.5	3.44
120	8.0	120.5	110.9	3.27
121	20.0	127.3	118.9	3.70
122	32.0	120.5	114.4	3.60
123	36.0	127.3	111.0	7.15
124	40.0	120.5	114.4	3.00
125	44.0	127.3	121.2	2.77
126	48.0	120.5	104.4	3.06
127	52.0	127.3	111.2	1.70
128	56.0	120.5	104.4	1.60
129	60.0	127.3	111.2	1.43
130	64.0	120.5	104.5	1.35
131	68.0	127.3	111.3	1.20
132	72.0	120.5	94.6	0.95
133	76.0	127.3	101.4	0.94
134	80.0	120.5	94.6	0.92
135	84.0	127.3	101.4	0.92
136	88.0	120.5	94.7	0.92
137	92.0	127.3	101.5	0.90
138	96.0	120.5	94.8	0.91
139	100.0	127.3	91.7	0.86
140	104.0	120.5	85.0	0.86
141	108.0	127.3	91.8	0.89
142	112.0	120.5	85.1	0.91
143	116.0	127.3	82.1	0.81
144	120.0	120.5	75.4	0.82
145	124.0	127.3	82.2	0.92
146	128.0	120.5	75.6	0.94
147	132.0	127.3	72.6	0.82
148	136.0	120.5	65.4	0.84
149	140.0	127.3	70.2	0.98
150	144.0	120.5	62.8	1.01
151	148.0	127.3	67.5	1.17
152	152.0	120.5	60.1	1.22
153	156.0	127.3	64.9	1.43
154	160.0	120.5	68.7	1.51
155	0.0	134.0	124.2	3.62
156	12.0	140.8	131.4	3.38
157	20.0	140.8	132.3	3.65
158	28.0	140.8	133.5	3.39
159	32.0	134.0	127.7	3.07
160	36.0	140.8	134.6	2.75
161	40.0	134.0	117.8	5.07
162	44.0	140.8	124.6	3.78
163	48.0	134.0	117.9	1.89
164	52.0	140.8	124.7	1.58
165	56.0	134.0	117.9	1.53
166	60.0	140.8	124.7	1.26
167	64.0	134.0	118.0	1.23
168	68.0	140.8	114.8	1.04
169	72.0	134.0	108.1	1.08
170	76.0	140.8	114.9	0.92

171	80.0	134.0	108.1	0.92
172	84.0	140.8	114.9	0.88
173	88.0	134.0	108.2	0.89
174	92.0	140.8	115.0	0.92
175	96.0	134.0	108.3	0.93
176	100.0	140.8	105.2	0.86
177	104.0	134.0	98.5	0.88
178	108.0	140.8	105.3	0.94
179	112.0	134.0	88.8	0.80
180	116.0	140.8	95.6	0.88
181	120.0	134.0	88.9	0.90
182	124.0	140.8	95.7	0.99
183	128.0	134.0	79.3	0.78
184	132.0	140.8	85.0	0.94
185	136.0	134.0	77.6	0.96
186	140.0	140.8	82.3	1.10
187	144.0	134.0	74.9	1.13
188	148.0	140.8	79.7	1.31
189	152.0	134.0	72.3	1.37
190	156.0	140.8	87.4	1.49
191	160.0	134.0	80.5	1.51
192	0.0	147.5	137.7	3.55
193	4.0	154.3	144.5	3.47
194	8.0	147.5	137.9	3.47
195	12.0	154.3	144.9	3.55
196	16.0	147.5	138.5	3.63
197	20.0	154.3	145.7	3.63
198	24.0	147.5	139.5	3.56
199	28.0	154.3	136.8	3.17
200	32.0	147.5	140.9	2.78
201	36.0	154.3	138.0	5.89
202	40.0	147.5	131.3	4.46
203	44.0	154.3	148.2	2.15
204	48.0	147.5	141.4	2.12
205	52.0	154.3	138.2	1.35
206	56.0	147.5	131.4	1.30
207	60.0	154.3	138.2	1.16
208	64.0	147.5	121.5	1.01
209	68.0	154.3	138.3	1.07
210	72.0	147.5	121.6	0.93
211	76.0	154.3	128.4	0.88
212	80.0	147.5	121.6	0.88
213	84.0	154.3	128.4	0.90
214	88.0	147.5	121.7	0.91
215	92.0	154.3	128.5	0.94
216	96.0	147.5	111.9	0.84
217	100.0	154.3	118.7	0.91
218	104.0	147.5	112.0	0.92
219	108.0	154.3	109.0	0.84
220	112.0	147.5	102.3	0.86
221	116.0	154.3	109.1	0.96
222	120.0	147.5	102.4	0.97
223	124.0	154.3	99.4	0.90
224	128.0	147.5	92.4	0.92
225	132.0	154.3	97.1	1.05
226	136.0	147.5	89.7	1.07
227	140.0	154.3	94.5	1.22
228	144.0	147.5	87.1	1.26
229	148.0	154.3	101.6	1.48
230	152.0	147.5	94.5	1.52
231	156.0	154.3	95.8	1.40
232	160.0	147.5	88.6	1.59
233	4.0	167.8	158.0	3.48

234	8.0	161.0	151.4	3.50
235	16.0	161.0	151.9	3.69
236	20.0	167.8	159.1	3.56
237	24.0	161.0	152.9	3.16
238	28.0	167.8	160.1	2.65
239	32.0	161.0	154.1	2.61
240	36.0	167.8	161.5	2.20
241	40.0	161.0	154.9	2.13
242	44.0	167.8	151.6	1.84
243	48.0	161.0	144.9	1.51
244	52.0	167.8	151.7	1.23
245	56.0	161.0	144.9	1.19
246	60.0	167.8	151.7	1.09
247	64.0	161.0	145.0	1.08
248	68.0	167.8	141.8	0.90
249	72.0	161.0	135.1	0.88
250	76.0	167.8	141.8	0.88
251	80.0	161.0	135.1	0.89
252	84.0	167.8	141.9	0.93
253	88.0	161.0	135.2	0.95
254	92.0	167.8	142.0	1.10
255	96.0	161.0	125.4	0.89
256	100.0	167.8	132.2	0.96
257	104.0	161.0	125.5	0.97
258	108.0	167.8	122.5	0.92
259	112.0	161.0	115.8	0.94
260	116.0	167.8	122.6	1.03
261	120.0	161.0	115.9	1.05
262	124.0	167.8	111.9	1.00
263	128.0	161.0	104.5	1.02
264	132.0	167.8	109.3	1.16
265	136.0	161.0	101.9	1.19
266	140.0	167.8	105.5	1.36
267	144.0	161.0	98.1	1.42
268	148.0	167.8	110.3	1.43
269	152.0	161.0	103.0	1.41
270	156.0	167.8	114.7	1.58
271	160.0	161.0	107.5	1.59
272	0.0	174.5	164.7	3.61
273	4.0	181.3	171.5	3.60
274	12.0	181.3	171.8	3.63
275	20.0	181.3	172.5	3.01
276	28.0	181.3	173.5	2.33
277	36.0	181.3	174.7	1.95
278	40.0	174.5	158.3	3.95
279	44.0	181.3	165.1	1.45
280	48.0	174.5	158.4	1.34
281	52.0	181.3	165.1	1.11
282	56.0	174.5	158.4	1.10
283	60.0	181.3	165.2	1.07
284	64.0	174.5	148.5	0.91
285	68.0	181.3	155.3	0.87
286	72.0	174.5	148.6	0.88
287	76.0	181.3	155.3	0.91
288	80.0	174.5	138.7	0.83
289	84.0	181.3	155.4	1.02
290	88.0	174.5	148.7	1.00
291	92.0	181.3	145.6	0.92
292	96.0	174.5	138.9	0.94
293	100.0	181.3	145.7	1.03
294	104.0	174.5	129.1	0.90
295	108.0	181.3	136.0	0.99
296	112.0	174.5	129.3	1.01

297	116.0	181.3	136.1	1.09
298	120.0	174.5	119.3	0.98
299	124.0	181.3	124.1	1.10
300	128.0	174.5	116.7	1.13
301	132.0	181.3	130.7	1.42
302	136.0	174.5	133.8	1.44
303	140.0	181.3	125.0	1.39
304	144.0	174.5	117.7	1.42
305	148.0	181.3	129.3	1.42
306	152.0	174.5	122.0	1.54
307	156.0	181.3	123.6	1.52
308	160.0	174.5	116.2	1.53
309	0.0	188.0	178.2	3.59
310	4.0	194.8	185.0	3.60
311	12.0	194.8	185.3	3.55
312	20.0	194.8	185.9	2.69
313	28.0	194.8	186.8	2.02
314	36.0	194.8	178.0	4.43
315	40.0	188.0	171.8	1.58
316	44.0	194.8	178.6	1.26
317	48.0	188.0	171.9	1.18
318	52.0	194.8	178.6	1.07
319	56.0	188.0	171.9	1.07
320	60.0	194.8	168.7	0.86
321	64.0	188.0	162.0	0.86
322	68.0	194.8	168.8	0.89
323	72.0	188.0	162.1	0.90
324	76.0	194.8	158.9	0.79
325	80.0	188.0	162.1	0.95
326	84.0	194.8	168.9	1.11
327	88.0	188.0	162.2	1.12
328	92.0	194.8	159.1	0.97
329	96.0	188.0	152.4	0.99
330	100.0	194.8	149.3	0.95
331	104.0	188.0	142.6	0.97
332	108.0	194.8	149.5	1.06
333	112.0	188.0	142.8	1.07
334	116.0	194.8	148.9	1.12
335	120.0	188.0	131.5	1.08
336	124.0	194.8	145.4	1.19
337	128.0	188.0	138.0	1.21
338	132.0	194.8	139.9	1.32
339	136.0	188.0	132.5	1.36
340	140.0	194.8	144.1	1.36
341	144.0	188.0	136.7	1.42
342	148.0	194.8	138.5	1.49
343	152.0	188.0	131.0	1.49
344	156.0	194.8	132.9	1.39
345	160.0	188.0	125.4	1.40
346	0.0	201.5	191.7	3.70
347	4.0	208.3	198.5	3.64
348	8.0	201.5	191.8	3.55
349	12.0	208.3	198.8	3.53
350	16.0	201.5	192.3	3.56
351	20.0	208.3	199.4	2.29
352	24.0	201.5	193.0	2.13
353	28.0	208.3	200.2	1.79
354	36.0	208.3	201.3	1.71
355	40.0	201.5	185.3	1.33
356	44.0	208.3	192.1	1.15
357	48.0	201.5	185.4	1.12
358	56.0	201.5	185.4	1.07
359	60.0	208.3	182.2	0.87

360	64.0	201.5	175.5	0.88
361	68.0	208.3	182.3	0.93
362	72.0	201.5	175.6	0.94
363	76.0	208.3	172.4	0.84
364	80.0	201.5	175.6	1.03
365	84.0	208.3	182.4	1.18
366	88.0	201.5	175.7	1.20
367	92.0	208.3	172.6	1.00
368	96.0	201.5	165.9	1.09
369	100.0	208.3	162.8	1.02
370	104.0	201.5	156.1	1.04
371	108.0	208.3	163.0	1.12
372	112.0	201.5	156.2	1.13
373	116.0	208.3	160.4	1.20
374	120.0	201.5	152.9	1.22
375	124.0	208.3	164.7	1.37
376	128.0	201.5	147.4	1.29
377	132.0	208.3	159.1	1.35
378	136.0	201.5	151.6	1.37
379	140.0	208.3	162.9	1.58
380	144.0	201.5	146.0	1.48
381	148.0	208.3	148.1	1.38
382	152.0	201.5	140.5	1.39
383	156.0	208.3	142.7	1.51
384	160.0	201.5	135.1	1.48
385	8.0	215.0	205.3	3.52
386	12.0	221.8	212.3	3.49
387	16.0	215.0	205.8	2.65
388	24.0	215.0	206.5	1.85
389	28.0	221.8	213.6	1.64
390	32.0	215.0	197.5	4.33
391	40.0	215.0	198.6	1.16
392	44.0	221.8	205.6	1.12
393	48.0	215.0	198.9	1.11
394	52.0	221.8	195.6	1.31
395	56.0	215.0	188.9	0.86
396	60.0	221.8	195.7	0.90
397	64.0	215.0	189.0	0.92
398	68.0	221.8	195.8	0.97
399	72.0	215.0	179.1	0.83
400	76.0	221.8	195.8	1.07
401	80.0	215.0	189.1	1.11
402	84.0	221.8	195.9	1.22
403	88.0	215.0	169.4	0.84
404	92.0	221.8	186.1	1.19
405	96.0	215.0	169.5	0.99
406	100.0	221.8	176.3	1.08
407	104.0	215.0	169.6	1.10
408	108.0	221.8	175.4	1.17
409	112.0	215.0	167.8	1.19
410	116.0	221.8	179.6	1.31
411	120.0	215.0	172.2	1.36
412	124.0	221.8	174.1	1.35
413	128.0	215.0	166.6	1.36
414	132.0	221.8	168.7	1.43
415	136.0	215.0	161.1	1.46
416	140.0	221.8	163.3	1.36
417	144.0	215.0	155.7	1.37
418	148.0	221.8	167.0	1.49
419	152.0	215.0	150.3	1.53
420	156.0	221.8	161.6	1.67
421	160.0	215.0	154.0	1.70
422	4.0	235.3	225.5	3.53

423	24.0	228.5	219.9	1.66
424	32.0	228.5	210.8	4.48
425	40.0	228.5	211.9	1.10
426	44.0	235.3	219.1	1.11
427	48.0	228.5	212.4	1.11
428	52.0	235.3	209.1	0.87
429	56.0	228.5	202.4	0.89
430	60.0	235.3	209.2	0.94
431	64.0	228.5	202.5	0.95
432	68.0	235.3	199.3	0.87
433	72.0	228.5	192.6	0.88
434	76.0	235.3	209.3	1.16
435	80.0	228.5	202.6	1.22
436	84.0	235.3	189.5	0.91
437	88.0	228.5	192.8	1.08
438	92.0	235.3	189.7	1.03
439	96.0	228.5	183.0	1.06
440	100.0	235.3	189.8	1.14
441	104.0	228.5	182.9	1.15
442	108.0	235.3	194.7	1.19
443	112.0	228.5	187.2	1.27
444	116.0	235.3	179.9	1.30
445	120.0	228.5	181.7	1.31
446	124.0	235.3	183.9	1.39
447	128.0	228.5	176.3	1.43
448	132.0	235.3	178.6	1.34
449	136.0	228.5	170.9	1.35
450	140.0	235.3	182.3	1.51
451	144.0	228.5	174.6	1.52
452	148.0	235.3	177.0	1.63
453	152.0	228.5	169.3	1.65
454	156.0	235.3	171.9	1.38
455	160.0	228.5	164.1	1.39
456	8.0	242.0	232.3	3.49
457	12.0	248.8	239.2	1.96
458	24.0	242.0	233.3	1.55
459	28.0	248.8	240.4	1.48
460	32.0	242.0	234.2	1.50
461	36.0	248.8	241.4	1.66
462	40.0	242.0	225.2	1.08
463	44.0	248.8	232.5	1.11
464	48.0	242.0	225.9	1.16
465	52.0	248.8	222.6	0.91
466	56.0	242.0	215.9	0.93
467	60.0	248.8	222.7	0.98
468	64.0	242.0	205.9	0.85
469	68.0	248.8	212.8	0.92
470	72.0	242.0	206.1	0.94
471	76.0	248.8	222.8	1.24
472	80.0	242.0	216.1	1.26
473	84.0	248.8	203.0	0.98
474	88.0	242.0	206.3	1.22
475	92.0	248.8	203.2	1.10
476	96.0	242.0	196.5	1.12
477	100.0	248.8	200.4	1.17
478	104.0	242.0	192.7	1.18
479	108.0	248.8	195.1	1.25
480	112.0	242.0	187.5	1.28
481	116.0	248.8	199.1	1.39
482	120.0	242.0	191.5	1.39
483	124.0	248.8	193.9	1.32
484	128.0	242.0	186.2	1.33
485	132.0	248.8	197.6	1.49

486	136.0	242.0	189.9	1.49
487	140.0	248.8	192.4	1.60
488	144.0	242.0	184.7	1.61
489	148.0	248.8	187.3	1.35
490	152.0	242.0	179.6	1.36
491	156.0	248.8	182.4	1.41
492	160.0	242.0	174.6	1.40
493	0.0	255.5	245.7	3.64
494	4.0	262.3	252.5	3.48
495	8.0	255.5	245.8	2.48
496	12.0	262.3	252.7	1.67
497	20.0	262.3	253.2	1.48
498	24.0	255.5	246.8	1.50
499	28.0	262.3	253.9	1.50
500	32.0	255.5	237.6	4.77
501	36.0	262.3	244.8	1.00
502	40.0	255.5	248.6	1.78
503	44.0	262.3	245.8	1.15
504	48.0	255.5	239.4	1.21
505	52.0	262.3	236.1	0.95
506	56.0	255.5	229.4	0.97
507	60.0	262.3	226.1	0.89
508	64.0	255.5	219.4	0.91
509	68.0	262.3	226.2	0.97
510	72.0	255.5	219.6	0.99
511	76.0	262.3	236.3	1.26
512	80.0	255.5	209.7	0.96
513	84.0	262.3	226.5	1.21
514	88.0	255.5	219.8	1.21
515	92.0	262.3	234.0	1.39
516	96.0	255.5	207.8	1.15
517	100.0	262.3	210.5	1.21
518	104.0	255.5	202.8	1.23
519	108.0	262.3	214.4	1.29
520	112.0	255.5	206.8	1.30
521	116.0	262.3	218.2	1.48
522	120.0	255.5	201.6	1.31
523	124.0	262.3	213.0	1.47
524	128.0	255.5	205.3	1.47
525	132.0	262.3	216.6	1.71
526	136.0	255.5	200.1	1.58
527	140.0	262.3	202.9	1.31
528	144.0	255.5	195.1	1.34
529	148.0	262.3	197.9	1.42
530	152.0	255.5	190.2	1.42
531	156.0	262.3	201.7	1.82
532	160.0	255.5	185.4	1.18
533	0.0	269.0	259.2	3.60
534	4.0	275.8	266.0	1.80
535	8.0	269.0	259.3	1.71
536	12.0	275.8	266.2	1.53
537	16.0	269.0	259.6	1.49
538	20.0	275.8	256.8	1.14
539	24.0	269.0	250.4	1.16
540	28.0	275.8	267.3	1.51
541	32.0	269.0	261.0	1.61
542	36.0	275.8	258.2	1.02
543	40.0	269.0	262.0	1.73
544	44.0	275.8	259.2	1.21
545	48.0	269.0	242.8	0.94
546	52.0	275.8	249.6	0.99
547	56.0	269.0	242.9	0.99
548	60.0	275.8	239.6	0.95

549	64.0	269.0	232.9	0.96
550	68.0	275.8	239.7	1.02
551	72.0	269.0	243.0	1.26
552	76.0	275.8	229.9	1.01
553	80.0	269.0	223.2	1.03
554	84.0	275.8	228.9	1.10
555	88.0	269.0	241.2	1.39
556	92.0	275.8	225.8	1.18
557	96.0	269.0	218.1	1.20
558	100.0	275.8	229.8	1.15
559	104.0	269.0	222.1	1.24
560	108.0	275.8	233.6	1.45
561	112.0	269.0	225.9	1.46
562	116.0	275.8	228.4	1.44
563	120.0	269.0	220.7	1.45
564	124.0	275.8	223.4	1.49
565	128.0	269.0	215.6	1.53
566	132.0	275.8	218.4	1.33
567	136.0	269.0	210.6	1.34
568	140.0	275.8	213.5	1.41
569	144.0	269.0	205.7	1.41
570	148.0	275.8	217.3	1.74
571	152.0	269.0	209.5	1.78
572	156.0	275.8	204.1	1.20
573	160.0	269.0	196.3	1.22
574	0.0	282.5	272.7	3.57
575	8.0	282.5	272.8	1.51
576	12.0	289.3	279.7	1.46
577	16.0	282.5	273.1	1.43
578	20.0	289.3	270.3	1.20
579	24.0	282.5	263.8	0.88
580	28.0	289.3	280.7	1.57
581	32.0	282.5	274.4	1.58
582	36.0	289.3	271.6	1.06
583	44.0	289.3	262.5	0.96
584	48.0	282.5	256.3	0.98
585	52.0	289.3	263.1	1.06
586	56.0	282.5	246.3	0.93
587	60.0	289.3	253.1	1.00
588	64.0	282.5	246.4	1.01
589	68.0	289.3	253.2	1.06
590	72.0	282.5	256.5	1.33
591	76.0	289.3	243.1	1.07
592	80.0	282.5	236.0	1.08
593	84.0	289.3	240.3	1.15
594	88.0	282.5	233.2	1.16
595	92.0	289.3	245.2	1.15
596	96.0	282.5	237.5	1.14
597	100.0	289.3	240.1	1.26
598	104.0	282.5	232.4	1.27
599	108.0	289.3	243.9	1.38
600	112.0	282.5	236.2	1.39
601	116.0	289.3	238.9	1.46
602	120.0	282.5	231.1	1.48
603	124.0	289.3	233.9	1.33
604	128.0	282.5	226.2	1.34
605	132.0	289.3	229.1	1.39
606	136.0	282.5	221.3	1.40
607	140.0	289.3	232.9	1.71
608	144.0	282.5	225.1	1.71
609	148.0	289.3	219.8	1.17
610	152.0	282.5	212.0	1.19
611	156.0	289.3	223.8	1.49

612	160.0	282.5	215.9	1.49
613	0.0	296.0	286.2	3.41
614	8.0	296.0	286.3	1.42
615	12.0	302.8	293.2	1.42
616	16.0	296.0	286.6	1.40
617	20.0	302.8	283.7	0.89
618	24.0	296.0	277.3	0.91
619	32.0	296.0	287.8	1.58
620	36.0	302.8	285.0	1.13
621	44.0	302.8	275.9	0.99
622	48.0	296.0	259.6	0.87
623	52.0	302.8	276.6	1.17
624	56.0	296.0	259.8	0.98
625	60.0	302.8	266.6	1.04
626	64.0	296.0	259.9	1.05
627	68.0	302.8	266.7	1.07
628	72.0	296.0	250.1	1.06
629	76.0	302.8	264.0	1.09
630	80.0	296.0	247.4	1.14
631	84.0	302.8	260.6	1.13
632	88.0	296.0	252.9	1.14
633	92.0	302.8	255.6	1.24
634	96.0	296.0	247.8	1.25
635	100.0	302.8	259.4	1.34
636	104.0	296.0	251.6	1.37
637	108.0	302.8	254.4	1.41
638	112.0	296.0	246.6	1.41
639	116.0	302.8	258.1	1.67
640	120.0	296.0	241.7	1.33
641	124.0	302.8	244.7	1.36
642	128.0	296.0	236.9	1.38
643	132.0	302.8	240.0	1.40
644	136.0	296.0	232.2	1.40
645	140.0	302.8	243.9	1.78
646	144.0	296.0	227.6	1.16
647	148.0	302.8	239.5	1.45
648	152.0	296.0	231.6	1.47
649	156.0	302.8	235.1	1.49
650	160.0	296.0	227.3	1.49
651	0.0	309.5	299.7	1.43
652	4.0	316.3	306.4	1.38
653	12.0	316.3	306.7	1.38
654	16.0	309.5	290.3	1.24
655	20.0	316.3	297.2	0.93
656	24.0	309.5	290.7	0.94
657	32.0	309.5	281.5	0.88
658	36.0	316.3	298.5	1.10
659	40.0	309.5	292.2	1.21
660	44.0	316.3	289.3	1.03
661	48.0	309.5	283.1	1.07
662	52.0	316.3	280.0	1.01
663	56.0	309.5	273.3	1.03
664	60.0	316.3	280.1	1.08
665	64.0	309.5	273.4	1.10
666	68.0	316.3	278.5	1.13
667	72.0	309.5	271.2	1.10
668	76.0	316.3	275.3	1.17
669	80.0	309.5	268.0	1.13
670	84.0	316.3	271.1	1.22
671	88.0	309.5	263.3	1.23
672	92.0	316.3	266.1	1.33
673	96.0	309.5	267.1	1.35
674	100.0	316.3	269.9	1.38

675	104.0	309.5	262.2	1.39
676	108.0	316.3	265.1	1.33
677	112.0	309.5	265.9	1.65
678	116.0	316.3	260.3	1.34
679	120.0	309.5	252.5	1.35
680	124.0	316.3	255.7	1.39
681	128.0	309.5	247.8	1.40
682	132.0	316.3	259.6	1.72
683	136.0	309.5	251.8	1.75
684	140.0	316.3	255.1	1.47
685	144.0	309.5	247.3	1.51
686	148.0	316.3	250.8	1.50
687	152.0	309.5	243.0	1.50
688	156.0	316.3	255.1	2.01
689	160.0	309.5	247.3	2.06
690	4.0	329.8	319.9	1.35
691	12.0	329.8	310.3	1.27
692	16.0	323.0	303.8	1.30
693	20.0	329.8	310.7	0.96
694	28.0	329.8	301.4	0.91
695	32.0	323.0	314.7	1.63
696	36.0	329.8	311.9	1.20
697	40.0	323.0	305.6	1.24
698	44.0	329.8	302.7	1.09
699	48.0	323.0	296.5	1.17
700	52.0	329.8	293.5	1.06
701	56.0	323.0	286.8	1.07
702	60.0	329.8	292.9	1.12
703	64.0	323.0	285.7	1.13
704	68.0	329.8	289.8	1.18
705	72.0	323.0	282.5	1.17
706	76.0	329.8	286.6	1.20
707	80.0	323.0	278.8	1.21
708	84.0	329.8	290.4	1.31
709	88.0	323.0	273.9	1.31
710	92.0	329.8	285.5	1.36
711	96.0	323.0	277.7	1.37
712	100.0	329.8	280.7	1.35
713	104.0	323.0	272.9	1.33
714	108.0	329.8	275.9	1.32
715	112.0	323.0	268.1	1.33
716	116.0	329.8	271.3	1.37
717	120.0	323.0	263.5	1.38
718	124.0	329.8	275.2	1.68
719	128.0	323.0	267.4	1.71
720	132.0	329.8	270.8	1.66
721	136.0	323.0	263.0	1.60
722	140.0	329.8	266.5	1.48
723	144.0	323.0	258.7	1.48
724	148.0	329.8	262.3	1.52
725	152.0	323.0	254.5	1.49
726	156.0	329.8	258.3	1.48
727	160.0	323.0	250.4	1.51
728	4.0	343.3	333.4	1.34
729	8.0	336.5	326.8	1.41
730	12.0	343.3	323.8	1.33
731	16.0	336.5	317.2	0.95
732	20.0	343.3	324.2	0.99
733	24.0	336.5	327.5	1.54
734	28.0	343.3	314.8	0.96
735	32.0	336.5	318.3	5.55
736	36.0	343.3	325.3	1.27
737	40.0	336.5	309.1	1.05

738	44.0	343.3	316.2	1.22
739	48.0	336.5	299.8	1.04
740	52.0	343.3	307.0	1.10
741	56.0	336.5	300.2	1.11
742	60.0	343.3	304.3	1.16
743	64.0	336.5	297.0	1.17
744	68.0	343.3	301.2	1.21
745	72.0	336.5	293.9	1.20
746	76.0	343.3	314.6	1.49
747	80.0	336.5	298.2	1.30
748	84.0	343.3	301.1	1.33
749	88.0	336.5	293.3	1.35
750	92.0	343.3	296.3	1.37
751	96.0	336.5	288.5	1.34
752	100.0	343.3	291.6	1.28
753	104.0	336.5	283.7	1.31
754	108.0	343.3	287.0	1.35
755	112.0	336.5	279.1	1.36
756	116.0	343.3	290.9	1.63
757	120.0	336.5	291.5	1.86
758	124.0	343.3	286.5	1.73
759	128.0	336.5	278.6	1.68
760	132.0	343.3	282.2	1.44
761	136.0	336.5	274.3	1.46
762	140.0	343.3	278.0	1.52
763	144.0	336.5	270.2	1.53
764	152.0	336.5	266.1	1.45
765	156.0	343.3	270.0	1.53
766	160.0	336.5	262.2	1.56
767	8.0	350.0	330.4	1.30
768	16.0	350.0	330.7	0.98
769	24.0	350.0	321.3	0.94
770	32.0	350.0	331.7	1.22
771	40.0	350.0	312.6	1.00
772	48.0	350.0	313.3	1.09
773	56.0	350.0	311.5	1.14
774	64.0	350.0	308.5	1.20
775	72.0	350.0	322.4	1.48
776	80.0	350.0	308.8	1.32
777	88.0	350.0	304.1	1.37
778	96.0	350.0	307.9	1.60
779	104.0	350.0	294.8	1.34
780	112.0	350.0	298.7	1.61
781	120.0	350.0	294.3	1.69
782	128.0	350.0	290.0	1.41
783	136.0	350.0	285.9	1.51
784	144.0	350.0	290.4	1.98
785	152.0	350.0	277.9	1.50
786	160.0	350.0	274.1	1.61

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