

Regione Emilia-Romagna
Direzione Generale Cura del Territorio e dell'Ambiente

IDROVIA FERRARESE - 1° LOTTO 1° STRALCIO / PARTE
DEMOLIZIONE E RICOSTRUZIONE BOTTE SIFONE DEL CANALE BIANCO
ALL'ATTRAVERSAMENTO DEL CANALE BOICELLI

PROGETTO ESECUTIVO

RUP:

Dott. Claudio Miccoli
REGIONE EMILIA-ROMAGNA
AGENZIA REGIONALE PER LA SICUREZZA TERRITORIALE E LA PROTEZIONE CIVILE
SERVIZIO AREA RENO PO DI VOLANO - SEDE DI FERRARA

PROGETTAZIONE:

MC Engineering Srl



SOCIETA' DI INGEGNERIA
Via Zanardi 157/6 - 40131 Bologna (BO)
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E-mail info@studio-chinni.it

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(Albo Ingegneri Bologna nr. 4776/A)

Gruppo di lavoro:
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Ing. Cristina Osti
Geom. Dario Calvanese

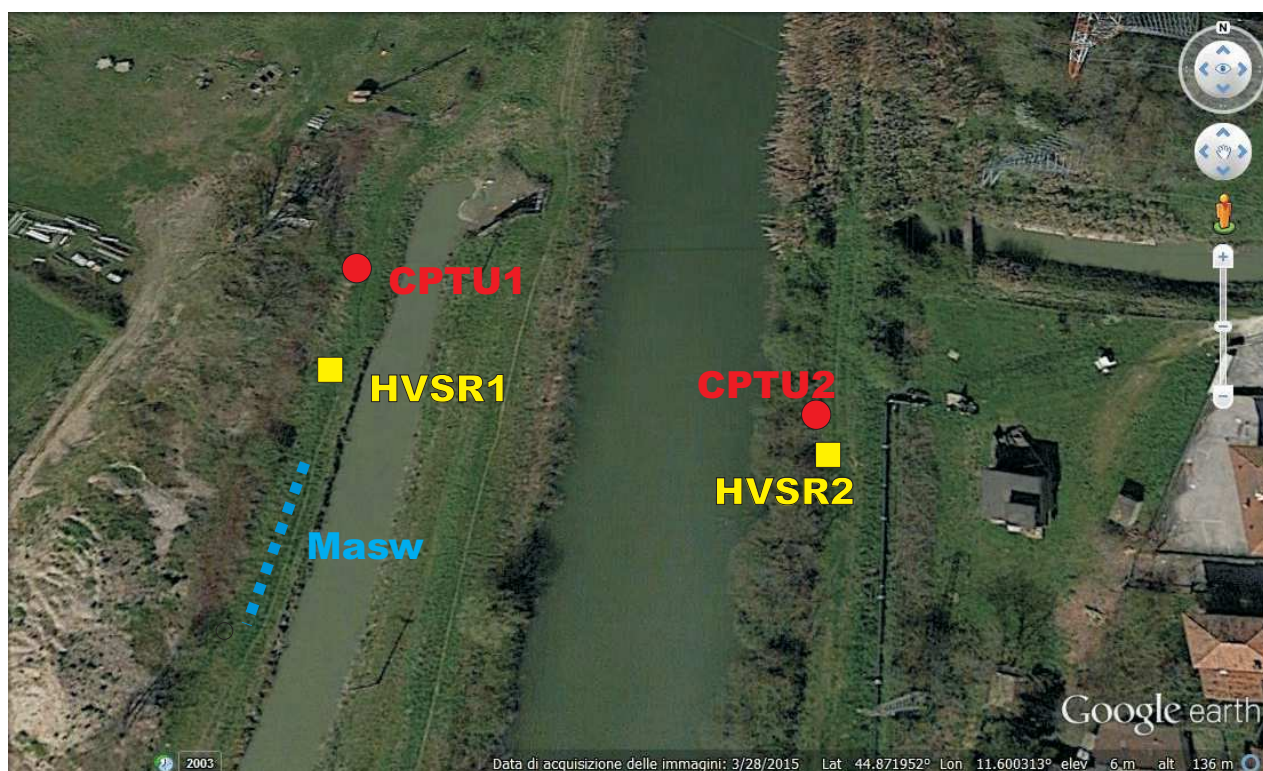
Titolo:

INDAGINI GEOGNOSTICHE

Codice elaborato

1 5 0 9 R 6 0 1 1 E 1

Data	14/04/2017	Archivio	1509_R_6011_E_1.pdf	Scala		
01	14/04/2017	Aggiornamento a seguito istruttoria tecnica del 05/04/2017		RC	GF	MC
00	30/09/2016	Emissione		RC	GF	MC
Rev.	Data	Oggetto		Redatto	Controllato	Approvato



Dott. Rocco Carbonella
Via Toscana 119 40141 Bologna
CII 393 8376620
rocco.carbonella@fastwebnet.it
Www.roccocarbonella.it

**Ubicazione indagini e
documentazione fotografica**

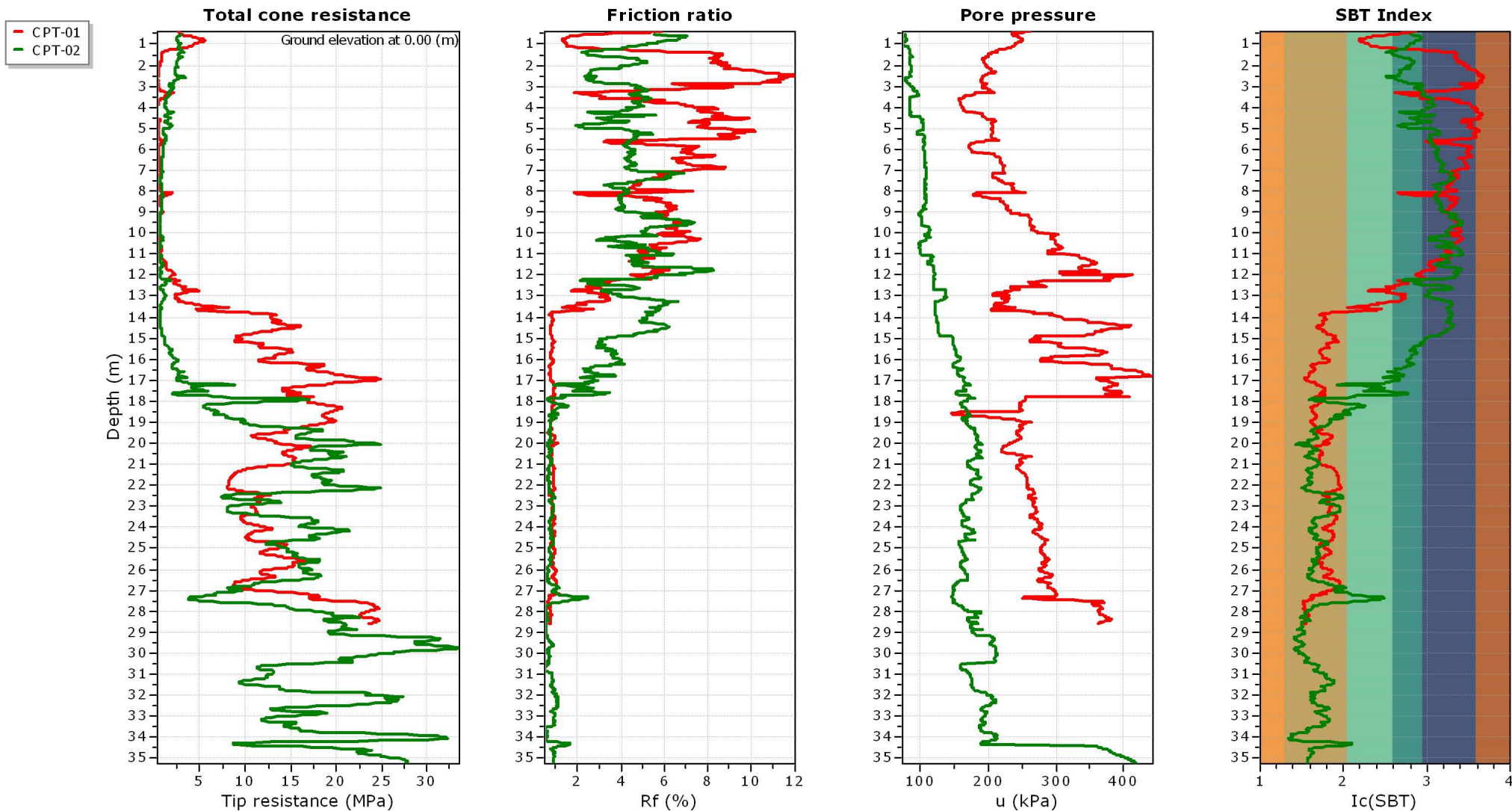


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Project: 15.038

Location: Ferrara Canale Boicelli

Overlay basic interpretation plots



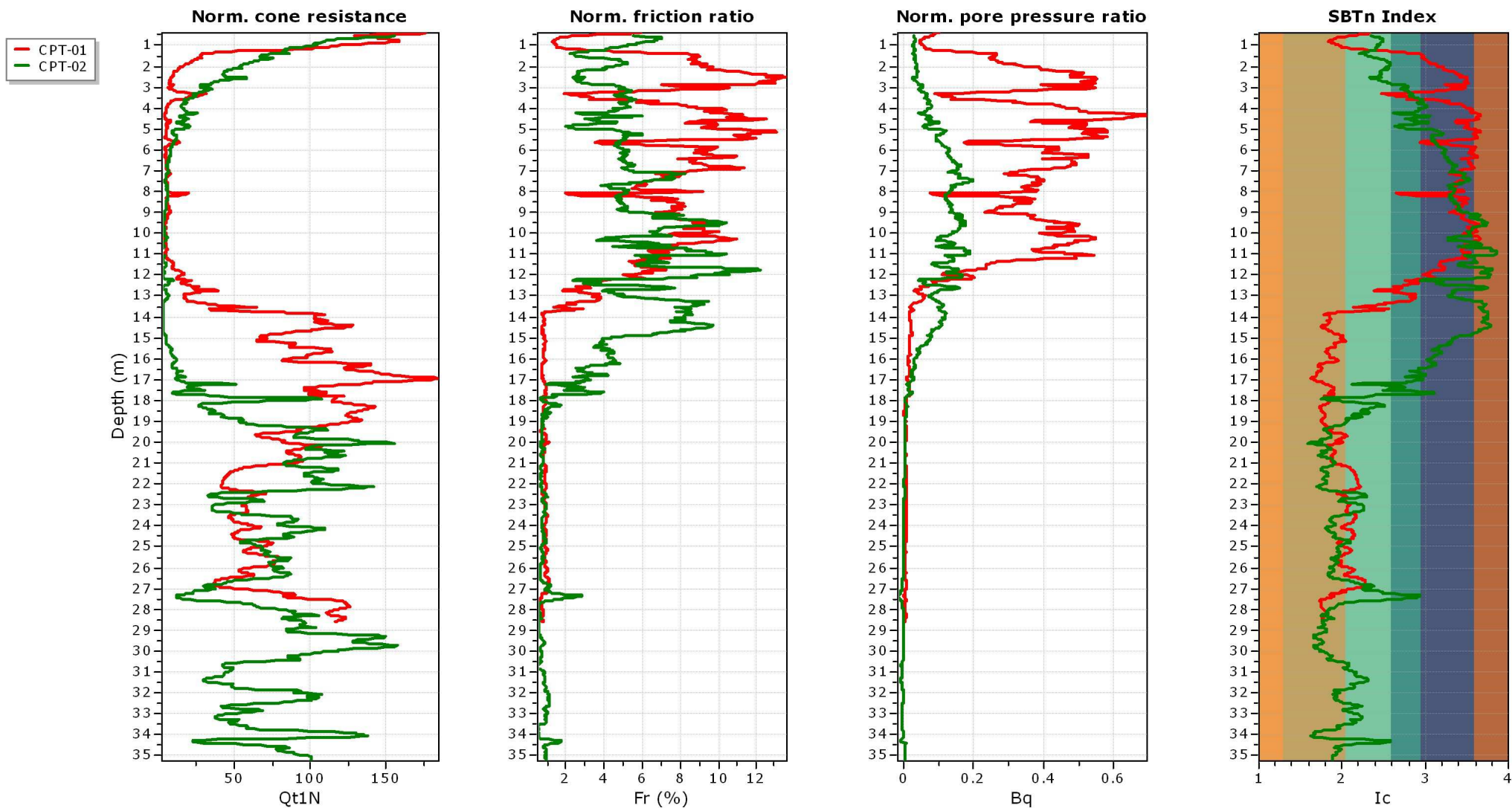


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Project: 15.038

Location: Ferrara Canale Boicelli

Normalized basic plots



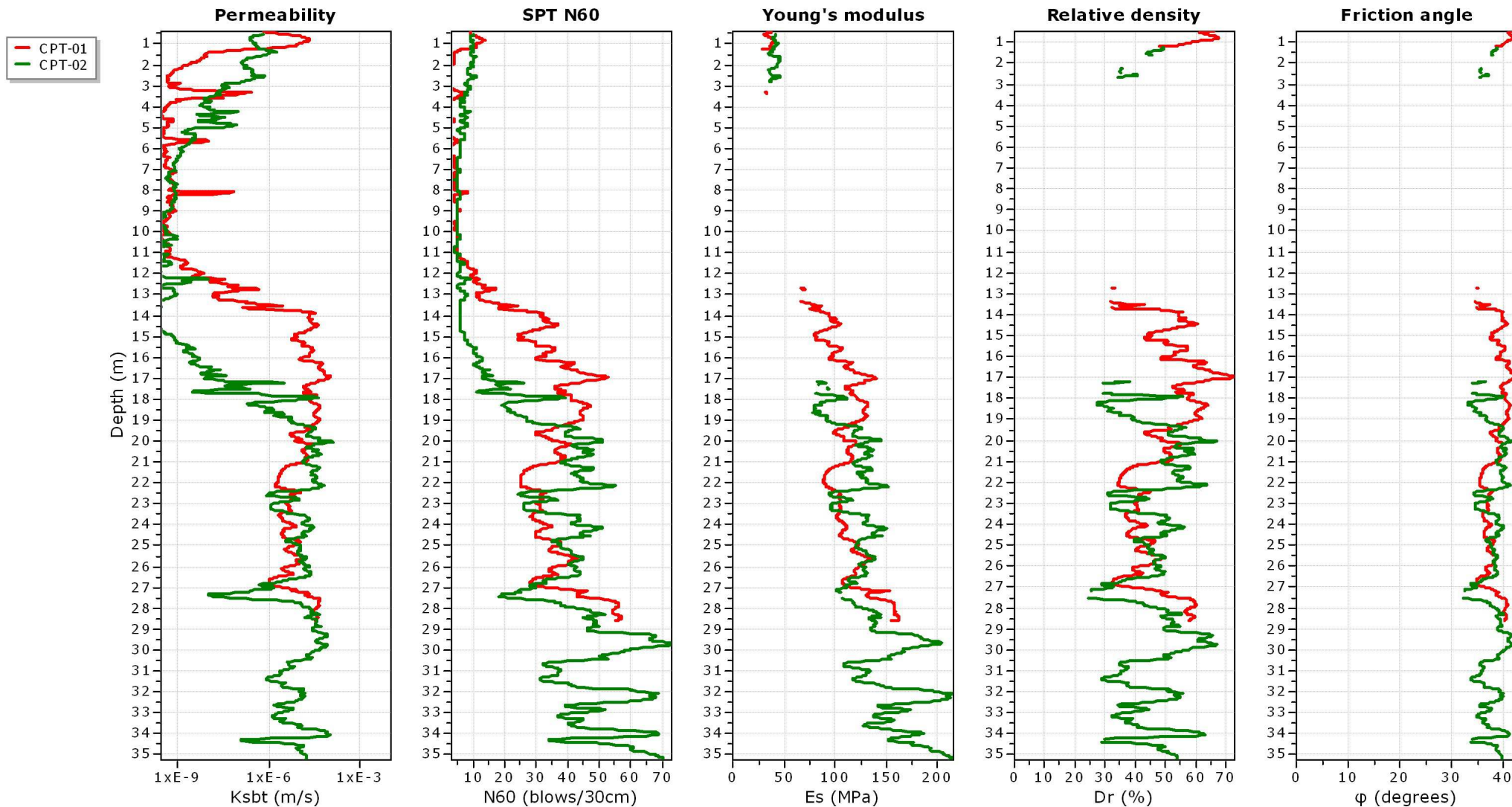


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Project: 15.038

Location: Ferrara Canale Boicelli

Overlay estimation plots (1)



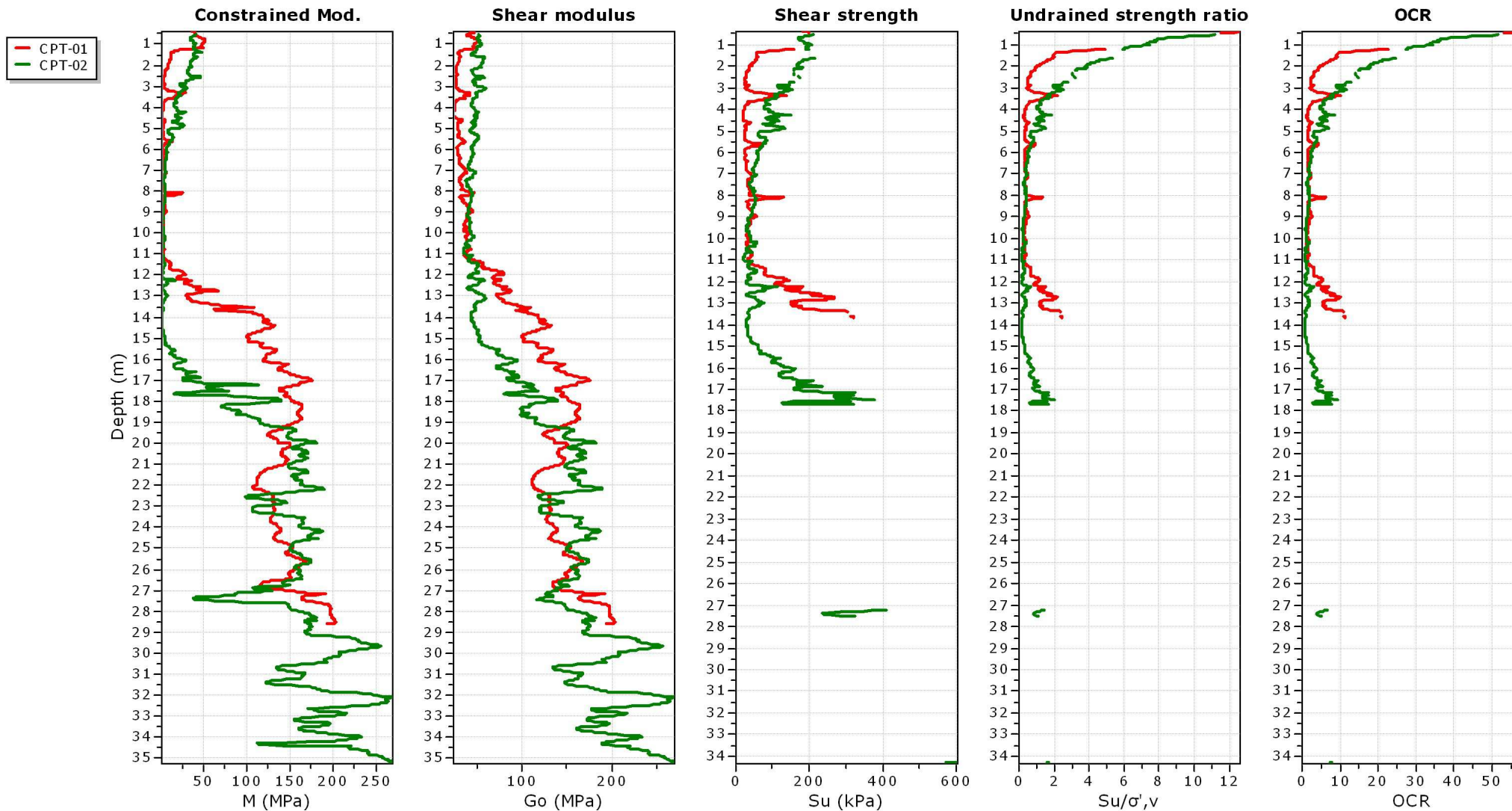


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Project: 15.038

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Overlay estimation plots (2)



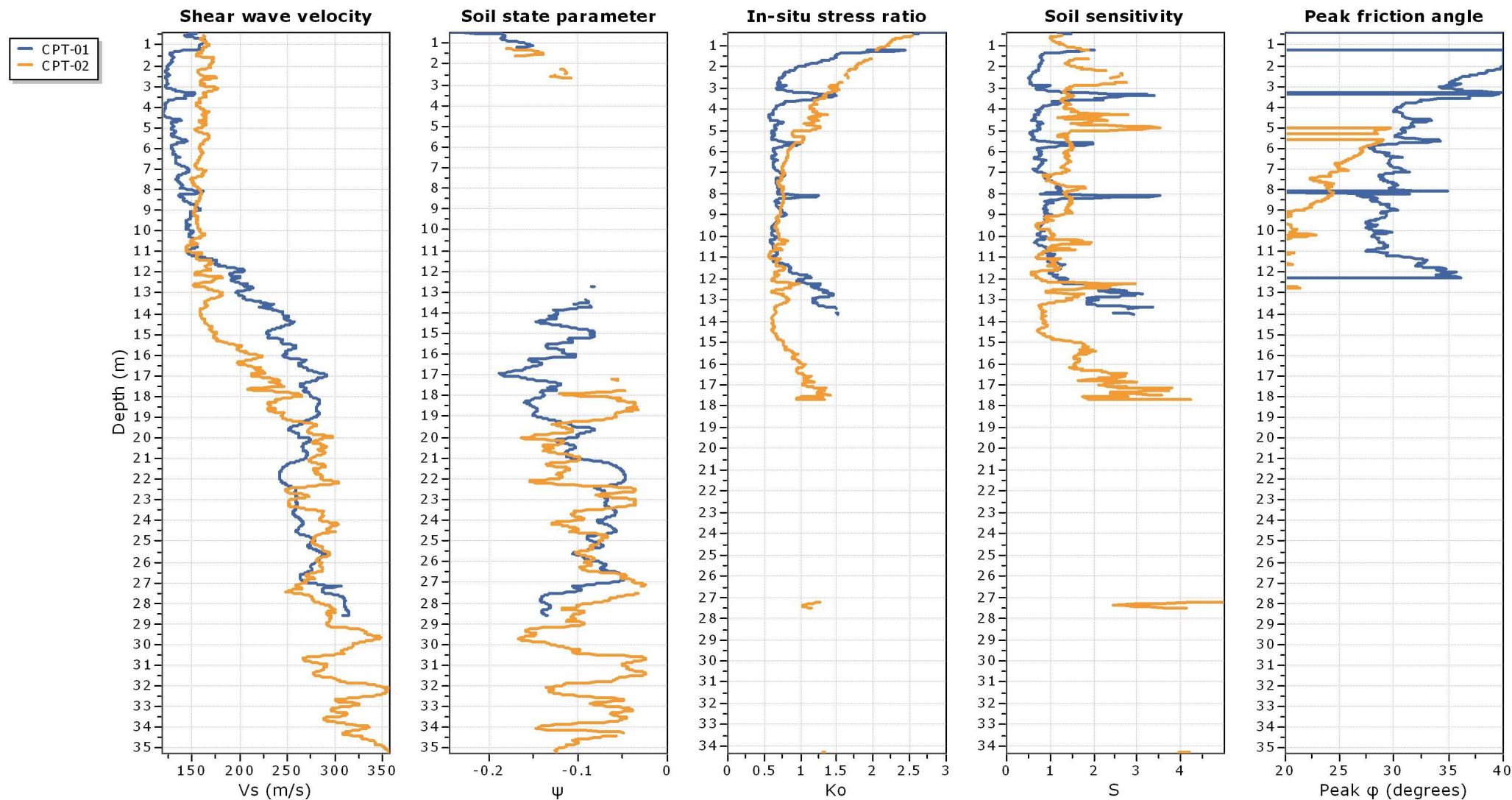


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Project: 15.038

Location: Ferrara Canale Boicelli

Overlay estimation plots (3)



Comm.	id		
Prov. Ferrara	CPTU 1		
profondità (m)	qc (Mpa)	fs (KPa)	U (kPa)
0.4	2.486691	66.82422	262
0.42	2.711073	81.82689	256
0.44	2.699457	99.602	250
0.46	2.687841	112.0438	242.6667
0.48	2.581458	131.266	236
0.5	2.602734	142.7104	228.6667
0.52	2.686863	151.1522	228
0.54	2.878352	151.2633	229.3333
0.56	2.971164	150.2553	232
0.58	3.268058	149.0304	236.6667
0.6	3.618144	132.1389	242.6667
0.62	3.818316	116.2447	243.3333
0.64	3.99819	101.5753	243.3333
0.66	4.178063	87.23933	244
0.68	4.34632	77.01178	245.3333
0.7	4.567769	68.45089	246.6667
0.72	4.800834	63.11489	248
0.74	5.011644	61.554	250.6667
0.76	5.201178	62.43756	250.6667
0.78	5.349136	64.546	250.6667
0.8	5.422626	66.54333	251.3333
0.82	5.442925	67.98511	250.6667
0.84	5.442925	69.42956	250
0.86	5.389734	70.20733	248
0.88	5.268801	71.08556	248
0.9	5.08795	71.30778	244.6667
0.92	4.85293	70.74956	244
0.94	4.649825	71.30244	242.6667
0.96	4.509571	71.85267	241.3333
0.98	4.338381	72.29444	240.6667
1	4.274551	71.96111	240
1.02	4.208765	71.62244	240.6667
1.04	4.154596	70.17533	240.6667
1.06	4.119748	69.38956	240
1.08	4.065579	68.05356	238
1.1	3.94758	66.38422	237.3333
1.12	3.818942	65.27044	235.3333
1.14	3.721242	64.37622	236
1.16	3.580989	63.14867	233.3333
1.18	3.324692	62.146	232
1.2	2.991971	61.80467	229.3333
1.22	2.5761	61.91311	224.6667
1.24	2.170867	61.79933	221.3333
1.26	1.840102	63.35222	218
1.28	1.540274	66.458	215.3333

1.3	1.345851	74.11667	213.3333
1.32	1.194959	82.11133	210.6667
1.34	1.01313	84.55311	206.6667
1.36	0.937685	82.88378	206.6667
1.38	0.79047	76.71933	213.3333
1.4	0.72664	72.94156	210
1.42	0.705363	67.83044	206
1.44	0.72664	63.49711	204
1.46	0.684087	62.05267	202.6667
1.48	0.693747	61.49444	200.6667
1.5	0.70243	61.71133	200
1.52	0.723706	60.82244	200
1.54	0.734345	62.60022	199.3333
1.56	0.745961	64.60289	199.3333
1.58	0.787536	66.04467	200.6667
1.6	0.776898	66.378	199.3333
1.62	0.773965	68.03667	199.3333
1.64	0.74205	68.81444	196.6667
1.66	0.75171	68.81178	196
1.68	0.740094	69.698	192.6667
1.7	0.677242	70.034	191.3333
1.72	0.665626	70.58689	191.3333
1.74	0.632733	70.02867	191.3333
1.76	0.664648	69.362	191.3333
1.78	0.682991	68.79844	193.3333
1.8	0.682991	67.57622	193.3333
1.82	0.649121	65.12644	193.3333
1.84	0.659759	63.23756	193.3333
1.86	0.648143	63.45711	193.3333
1.88	0.563037	63.67933	192.6667
1.9	0.57172	62.89622	193.3333
1.92	0.592018	61.89356	194.6667
1.94	0.559126	61.89089	195.3333
1.96	0.568786	61.666	196.6667
1.98	0.558148	60.11044	196.6667
2	0.536871	58.11044	197.3333
2.02	0.492363	56.32733	196
2.04	0.479769	56.76644	196.6667
2.06	0.446876	55.87489	196.6667
2.08	0.446876	54.986	197.3333
2.1	0.468153	53.986	199.3333
2.12	0.477813	53.31667	200
2.14	0.477813	51.76111	202
2.16	0.486496	50.31133	203.3333
2.18	0.48454	49.41711	204
2.2	0.463264	48.52822	203.3333
2.22	0.431349	48.41711	204
2.24	0.419733	48.19222	203.3333

2.26	0.409095	48.30333	203.3333
2.28	0.395523	47.62867	204
2.3	0.363608	47.18422	204.6667
2.32	0.373269	46.626	206
2.34	0.352852	49.93267	211.3333
2.36	0.362513	48.26333	209.3333
2.38	0.363491	47.15489	204.6667
2.4	0.38379	46.59667	200.6667
2.42	0.394428	46.59667	200
2.44	0.394428	45.93	199.3333
2.46	0.384767	46.37711	196.6667
2.48	0.363491	47.15489	195.3333
2.5	0.38379	48.26333	193.3333
2.52	0.361535	50.14956	193.3333
2.54	0.330598	50.93	192
2.56	0.330598	51.70778	192
2.58	0.318004	52.59133	192
2.6	0.318982	52.14956	190
2.62	0.318982	51.37178	192
2.64	0.328643	50.48022	192
2.66	0.328643	49.258	191.3333
2.68	0.339281	47.59133	189.3333
2.7	0.337325	46.586	188.6667
2.72	0.357624	45.91667	189.3333
2.74	0.336348	44.47222	188
2.76	0.33537	44.58067	189.3333
2.78	0.324731	44.58067	189.3333
2.8	0.314093	44.80289	190
2.82	0.31116	45.35044	190
2.84	0.321798	45.23933	190
2.86	0.343075	45.12822	192.6667
2.88	0.385628	45.01711	195.3333
2.9	0.44848	44.57	196.6667
2.92	0.490055	44.34511	198.6667
2.94	0.436864	45.01178	195.3333
2.96	0.394311	43.45622	191.3333
2.98	0.382695	42.34244	190
3	0.329503	42.34244	189.3333
3.02	0.307249	40.22867	190
3.04	0.285972	37.33978	189.3333
3.06	0.284017	35.33444	190
3.08	0.283039	33.10956	192.6667
3.1	0.3904	32.77889	197.3333
3.12	0.46389	32.77622	198.6667
3.14	0.526742	35.32911	200
3.16	0.60121	35.88467	203.3333
3.18	0.60121	36.66244	199.3333
3.2	0.558657	36.77356	192.6667

3.22	0.578956	35.54867	195.3333
3.24	0.72887	37.55133	197.3333
3.26	0.961934	37.99311	200.6667
3.28	1.281083	39.43756	210
3.3	1.695977	41.43756	206
3.32	2.02858	40.63844	182.6667
3.34	1.922197	37.08289	180.6667
3.36	1.805176	33.30511	180.6667
3.38	1.751984	33.63844	181.3333
3.4	1.708453	34.858	180.6667
3.42	1.603048	36.74956	175.3333
3.44	1.411559	37.30511	170.6667
3.46	1.261645	38.52467	166.6667
3.48	1.080794	39.74689	163.3333
3.5	0.910581	41.41356	162
3.52	0.910581	40.96911	163.3333
3.54	1.101093	43.96644	166
3.56	1.197815	44.52467	161.3333
3.58	1.069178	38.85533	158.6667
3.6	0.856412	35.41089	156.6667
3.62	0.675561	34.07756	155.3333
3.64	0.558539	36.522	155.3333
3.66	0.493732	36.96378	156
3.68	0.493732	37.85267	156.6667
3.7	0.482116	37.85	156.6667
3.72	0.483094	40.186	158.6667
3.74	0.503392	39.73889	159.3333
3.76	0.448245	35.73356	159.3333
3.78	0.426969	34.06689	159.3333
3.8	0.448245	32.95578	159.3333
3.82	0.437607	30.28911	159.3333
3.84	0.3728	28.06422	158.6667
3.86	0.351523	27.06422	158.6667
3.88	0.350545	26.72822	159.3333
3.9	0.361183	27.06156	159.3333
3.92	0.31863	27.72822	161.3333
3.94	0.347612	28.38689	162
3.96	0.317652	28.17	161.3333
3.98	0.328291	27.94778	162
4	0.349567	28.05889	161.3333
4.02	0.349567	28.50333	162.6667
4.04	0.326335	28.498	162.6667
4.06	0.315697	28.38689	162.6667
4.08	0.315697	28.72022	163.3333
4.1	0.305059	29.60911	163.3333
4.12	0.314719	29.27311	163.3333
4.14	0.325357	29.71756	164
4.16	0.326335	30.27578	165.3333

4.18	0.314719	31.49533	165.3333
4.2	0.314719	32.05089	164
4.22	0.304081	31.38422	165.3333
4.24	0.314719	29.93978	164
4.26	0.29442	29.60911	164
4.28	0.241229	29.16467	189.3333
4.3	0.251867	28.60911	190
4.32	0.251867	27.38689	191.3333
4.34	0.264461	27.28111	190
4.36	0.262505	27.498	192
4.38	0.264461	28.17	190
4.4	0.264461	28.50333	190
4.42	0.293443	28.49533	192
4.44	0.262505	28.72022	192
4.46	0.262505	28.94244	192
4.48	0.262505	29.16467	194.6667
4.5	0.305059	29.05356	195.3333
4.52	0.304081	28.93978	196.6667
4.54	0.315697	29.05356	196.6667
4.56	0.367911	29.27311	199.3333
4.58	0.43174	29.71756	204
4.6	0.484932	30.60644	206
4.62	0.527485	32.162	209.3333
4.64	0.548762	33.93978	210
4.66	0.507186	35.83133	209.3333
4.68	0.507186	37.94244	210.6667
4.7	0.496548	41.38689	208
4.72	0.432718	44.27578	206.6667
4.74	0.421102	46.38422	206
4.76	0.378549	46.93978	204.6667
4.78	0.346634	47.49533	204
4.8	0.356295	45.04822	204.6667
4.82	0.367911	42.27311	206
4.84	0.366933	40.15933	206.6667
4.86	0.387232	37.93444	206.6667
4.88	0.377571	36.49267	206.6667
4.9	0.409486	35.71489	206.6667
4.92	0.420124	35.04822	207.3333
4.94	0.387232	35.82333	206.6667
4.96	0.408508	35.82333	206.6667
4.98	0.376593	36.04556	206.6667
5	0.376593	36.49	204.6667
5.02	0.365955	36.60111	204.6667
5.04	0.344678	36.93444	204.6667
5.06	0.312764	36.71222	204
5.08	0.301148	36.37622	202.6667
5.1	0.311786	35.93178	202
5.12	0.320469	35.70422	204

5.14	0.341745	35.70422	206.6667
5.16	0.363022	35.92644	206.6667
5.18	0.384298	36.59311	206.6667
5.2	0.37366	37.70422	206
5.22	0.37366	37.14867	206.6667
5.24	0.387232	39.15667	207.3333
5.26	0.365955	41.04556	206.6667
5.28	0.365955	41.93444	206
5.3	0.365955	42.49	204
5.32	0.355317	42.82333	203.3333
5.34	0.323402	43.04556	203.3333
5.36	0.344678	43.15667	204
5.38	0.312764	42.15667	204
5.4	0.312764	40.82333	204
5.42	0.291487	40.04556	202.6667
5.44	0.312764	37.60111	203.3333
5.46	0.323402	35.93444	204
5.48	0.429785	35.15667	208
5.5	0.481999	34.48733	210.6667
5.52	0.493615	34.49	211.3333
5.54	0.52553	35.49	202
5.56	0.641573	37.04289	207.3333
5.58	0.811786	38.48733	215.3333
5.6	0.960722	41.93178	196
5.62	1.013913	45.154	193.3333
5.64	0.950084	43.26511	188.6667
5.66	0.97136	43.82067	184.6667
5.68	0.960722	40.82067	182.6667
5.7	0.896892	38.154	174
5.72	0.790509	36.37622	174
5.74	0.642551	34.60111	170.6667
5.76	0.588382	34.48733	172.6667
5.78	0.556467	32.59844	174.6667
5.8	0.53519	32.37622	175.3333
5.82	0.492637	33.93178	172.6667
5.84	0.386254	33.82067	170
5.86	0.364977	32.37622	171.3333
5.88	0.354339	31.154	171.3333
5.9	0.365955	30.60111	170.6667
5.92	0.354339	30.93178	170.6667
5.94	0.323402	31.71222	171.3333
5.96	0.354339	32.26511	171.3333
5.98	0.375616	31.59844	174.6667
6	0.387232	31.60111	174.6667
6.02	0.408508	32.26778	175.3333
6.04	0.376593	32.37889	175.3333
6.06	0.364977	31.82067	174.6667
6.08	0.376593	31.15667	175.3333

6.1	0.40753	31.04289	177.3333
6.12	0.418169	31.154	176.6667
6.14	0.387232	31.71222	177.3333
6.16	0.419147	31.15667	178.6667
6.18	0.408508	31.04556	178.6667
6.2	0.392121	32.94778	210
6.22	0.370844	32.28111	208
6.24	0.361183	31.506	209.3333
6.26	0.371822	31.83933	209.3333
6.28	0.371822	32.39489	209.3333
6.3	0.361183	32.72822	209.3333
6.32	0.361183	32.72822	210
6.34	0.381482	32.05889	211.3333
6.36	0.371822	32.17267	211.3333
6.38	0.393098	32.28378	210
6.4	0.51012	31.72822	218.6667
6.42	0.435652	32.28378	218.6667
6.44	0.370844	36.28111	214.6667
6.46	0.360206	37.28111	218
6.48	0.381482	37.05889	217.3333
6.5	0.424035	37.17	217.3333
6.52	0.424035	37.50333	217.3333
6.54	0.413397	37.28111	218
6.56	0.424035	35.28111	217.3333
6.58	0.413397	33.05889	217.3333
6.6	0.392121	33.28111	217.3333
6.62	0.424035	33.94778	218.6667
6.64	0.411442	32.94244	219.3333
6.66	0.390165	32.83133	220.6667
6.68	0.392121	32.28111	220.6667
6.7	0.390165	32.27578	220.6667
6.72	0.42208	31.72022	220.6667
6.74	0.432718	31.72022	220.6667
6.76	0.413397	32.39222	221.3333
6.78	0.432718	33.60911	224
6.8	0.445312	33.94778	224
6.82	0.434674	34.28111	222
6.84	0.432718	34.83133	222
6.86	0.434674	35.50333	221.3333
6.88	0.477227	36.39222	222
6.9	0.487865	36.94778	222
6.92	0.509142	37.94778	222.6667
6.94	0.551695	39.72556	222
6.96	0.551695	41.94778	222
6.98	0.594248	44.28111	222
7	0.58361	46.83667	221.3333
7.02	0.605864	47.506	222.6667
7.04	0.616503	49.39489	222

7.06	0.626163	50.61444	221.3333
7.08	0.658078	50.39222	222.6667
7.1	0.658078	48.61444	222.6667
7.12	0.669694	47.95044	224
7.14	0.700631	47.72556	224.6667
7.16	0.650373	47.40022	213.3333
7.18	0.60782	46.95578	208
7.2	0.618458	46.40022	207.3333
7.22	0.565267	45.95578	206.6667
7.24	0.533352	45.51133	206
7.26	0.501437	45.28911	206.6667
7.28	0.501437	43.84467	207.3333
7.3	0.501437	41.62244	207.3333
7.32	0.48016	40.40022	206.6667
7.34	0.48016	39.62244	208
7.36	0.469522	39.06689	208
7.38	0.48016	38.40022	210.6667
7.4	0.501437	36.62244	214
7.42	0.512075	35.178	214.6667
7.44	0.490799	34.28911	215.3333
7.46	0.468544	33.39756	214
7.48	0.436629	32.61978	214
7.5	0.490799	31.178	216.6667
7.52	0.511097	30.842	220.6667
7.54	0.512075	30.62244	220.6667
7.56	0.511097	30.39756	222
7.58	0.533352	29.62244	222.6667
7.6	0.54399	28.95578	222.6667
7.62	0.533352	27.178	224.6667
7.64	0.54399	27.40022	232
7.66	0.511097	26.61978	237.3333
7.68	0.512075	26.73356	234
7.7	0.512075	27.51133	234
7.72	0.585565	27.73089	235.3333
7.74	0.596204	27.842	236
7.76	0.61748	28.39756	236
7.78	0.596204	30.61978	235.3333
7.8	0.54399	30.28911	235.3333
7.82	0.565267	29.62244	236.6667
7.84	0.596204	30.17533	237.3333
7.86	0.60782	30.62244	236.6667
7.88	0.586543	31.06689	236
7.9	0.543012	31.842	233.3333
7.92	0.512075	30.51133	234
7.94	0.512075	29.62244	235.3333
7.96	0.533352	30.178	236.6667
7.98	0.535307	30.18333	236.6667
8	0.503392	30.18333	235.3333

8.02	0.599137	29.29444	240.6667
8.04	0.83318	28.96111	248.6667
8.06	1.26935	28.62778	254.6667
8.08	1.770328	32.07489	222.6667
8.1	1.865095	38.18333	184
8.12	1.712365	42.202	184
8.14	1.659173	44.75756	178.6667
8.16	1.542152	49.86867	170.6667
8.18	1.223003	46.53533	159.3333
8.2	0.871939	37.97978	156
8.22	0.595343	34.64644	168
8.24	0.595343	34.53533	189.3333
8.26	0.542152	33.86867	192
8.28	0.498621	34.866	193.3333
8.3	0.487983	34.866	195.3333
8.32	0.487983	32.42156	206
8.34	0.478322	28.75756	210
8.36	0.499599	27.09089	212
8.38	0.551812	27.08822	217.3333
8.4	0.594365	27.08822	217.3333
8.42	0.573089	27.866	216.6667
8.44	0.541174	29.08822	210
8.46	0.456068	33.08822	210.6667
8.48	0.475389	33.63844	217.3333
8.5	0.487983	32.75489	219.3333
8.52	0.509259	32.866	222
8.54	0.539218	33.86067	221.3333
8.56	0.541174	33.97711	220.6667
8.58	0.551812	32.08822	221.3333
8.6	0.59241	30.97178	222.6667
8.62	0.615642	31.75489	224
8.64	0.624325	33.30511	224.6667
8.66	0.62628	35.42156	225.3333
8.68	0.62628	37.53267	226.6667
8.7	0.634963	38.194	229.3333
8.72	0.668834	39.19933	230
8.74	0.709431	40.86067	230
8.76	0.688155	42.52733	226.6667
8.78	0.72007	43.41622	226
8.8	0.72007	44.30511	226
8.82	0.709431	44.97178	225.3333
8.84	0.709431	46.52733	225.3333
8.86	0.722025	47.64378	228
8.88	0.741346	47.97178	230
8.9	0.72007	48.86067	230
8.92	0.771305	48.96644	232
8.94	0.79356	49.858	232.6667
8.96	0.846751	51.08022	234

8.98	0.835135	51.74422	233.3333
9	0.836113	50.74689	232.6667
9.02	0.772283	52.52467	225.3333
9.04	0.707476	52.63311	222
9.06	0.655262	52.63578	219.3333
9.08	0.563428	55.42422	247.3333
9.1	0.510237	54.31311	246.6667
9.12	0.510237	52.53533	257.3333
9.14	0.574067	51.09089	259.3333
9.16	0.605982	49.31311	259.3333
9.18	0.615642	46.866	259.3333
9.2	0.61662	44.42422	259.3333
9.22	0.62628	42.75489	260
9.24	0.62628	41.64378	261.3333
9.26	0.613687	41.52733	261.3333
9.28	0.615642	41.31044	261.3333
9.3	0.624325	41.97178	262.6667
9.32	0.605004	42.53267	263.3333
9.34	0.603048	42.194	263.3333
9.36	0.59241	42.08289	263.3333
9.38	0.59241	41.41622	263.3333
9.4	0.560495	41.41622	262.6667
9.42	0.560495	41.30511	262
9.44	0.539218	42.194	261.3333
9.46	0.517942	42.74956	262
9.48	0.539218	42.52733	262
9.5	0.516964	42.52467	262
9.52	0.496665	43.194	262
9.54	0.474411	43.19133	260
9.56	0.453134	42.30244	259.3333
9.58	0.442496	40.858	260
9.6	0.454112	40.194	260
9.62	0.454112	40.194	262
9.64	0.486027	40.41622	263.3333
9.66	0.506326	39.74689	264.6667
9.68	0.516964	39.74689	267.3333
9.7	0.570156	38.96911	267.3333
9.72	0.571133	38.74956	267.3333
9.74	0.570156	38.41356	266
9.76	0.517942	39.08289	263.3333
9.78	0.496665	39.63844	263.3333
9.8	0.475389	40.08289	263.3333
9.82	0.454112	39.86067	264.6667
9.84	0.475389	40.30511	264.6667
9.86	0.454112	40.30511	266
9.88	0.495687	40.08022	269.3333
9.9	0.496665	38.97178	270
9.92	0.506326	38.41356	272

9.94	0.517942	37.86067	272
9.96	0.538241	37.08022	273.3333
9.98	0.560495	36.97178	274
10	0.610753	37.85267	277.3333
10.02	0.622369	38.18867	277.3333
10.06	0.637896	41.86867	302
10.08	0.61662	42.86867	300
10.1	0.595343	43.09089	298.6667
10.12	0.595343	43.31311	298
10.14	0.520875	43.42422	294.6667
10.16	0.498621	43.19933	292
10.18	0.48896	42.09089	289.3333
10.2	0.486027	41.97178	291.3333
10.22	0.446407	40.97978	290.6667
10.24	0.446407	40.75756	290.6667
10.26	0.457045	40.202	292.6667
10.28	0.446407	41.31311	294.6667
10.3	0.499599	41.09089	296.6667
10.32	0.510237	40.75756	298.6667
10.34	0.542152	40.86867	298
10.36	0.510237	41.86867	296.6667
10.38	0.520875	43.53533	298
10.4	0.510237	44.42422	298.6667
10.42	0.542152	45.202	298.6667
10.44	0.54313	45.87133	298.6667
10.46	0.553768	45.87133	299.3333
10.48	0.563428	46.42422	299.3333
10.5	0.55279	45.09089	298.6667
10.52	0.54313	44.538	296.6667
10.54	0.563428	43.86867	298.6667
10.56	0.59241	43.52733	304
10.58	0.613687	42.63844	303.3333
10.6	0.605004	41.42156	304
10.62	0.62628	39.42156	306.6667
10.64	0.624325	37.97178	306.6667
10.66	0.59241	37.30511	303.3333
10.68	0.603048	36.63844	303.3333
10.7	0.624325	35.97178	306.6667
10.72	0.658195	36.75489	308.6667
10.74	0.679472	38.31044	306
10.76	0.69011	39.42156	296.6667
10.78	0.677516	40.08289	294
10.8	0.679472	40.31044	295.3333
10.82	0.679472	42.31044	298
10.84	0.658195	44.31044	291.3333
10.86	0.658195	45.19933	287.3333
10.88	0.62628	45.53267	286.6667
10.9	0.594365	45.97711	286.6667

10.92	0.551812	44.53267	286.6667
10.94	0.551812	42.31044	287.3333
10.96	0.551812	40.42156	288
10.98	0.509259	38.53267	288
11	0.509259	36.08822	288
11.02	0.505465	33.99578	331.3333
11.04	0.505465	33.88467	329.3333
11.06	0.557679	34.54867	332.6667
11.08	0.600232	33.99311	333.3333
11.1	0.600232	32.10422	332.6667
11.12	0.600232	32.43756	333.3333
11.14	0.557679	32.99311	330
11.16	0.547041	31.77089	332
11.18	0.577	31.54333	337.3333
11.2	0.621509	31.54867	340.6667
11.22	0.727892	31.77089	343.3333
11.24	0.791722	32.99311	346.6667
11.26	0.812998	35.77089	349.3333
11.28	0.898104	36.65978	348
11.3	0.972573	37.10422	344.6667
11.32	1.047041	38.99311	352
11.34	1.078956	40.65978	349.3333
11.36	1.111848	41.66244	355.3333
11.38	1.133125	44.44022	354.6667
11.4	1.134103	46.44289	351.3333
11.42	1.185339	49.21533	355.3333
11.44	1.186316	49.99578	359.3333
11.46	1.196955	51.32911	356.6667
11.48	1.206615	54.77089	355.3333
11.5	1.217253	56.10422	350.6667
11.52	1.206615	57.54867	349.3333
11.54	1.195977	59.65978	332.6667
11.56	1.142785	62.77089	336
11.58	1.164062	63.65978	337.3333
11.6	1.153424	64.65978	336.6667
11.62	1.130191	63.32111	337.3333
11.64	1.14083	61.09889	324.6667
11.66	1.087638	62.21	324.6667
11.68	1.162106	62.32111	326
11.7	1.203682	63.65178	331.3333
11.72	1.268489	61.54333	332
11.74	1.320703	63.76289	327.3333
11.76	1.447385	68.87133	340.6667
11.78	1.606959	73.20467	357.3333
11.8	1.798449	69.31578	364
11.82	1.85164	71.42689	290.6667
11.84	1.904832	78.31578	288.6667
11.86	1.914492	85.53533	285.3333

11.88	1.9793	88.87133	291.3333
11.9	2.042152	93.64644	294.6667
11.92	2.031513	99.97978	298.6667
11.94	2.12628	103.4216	294
11.96	2.063428	108.8687	285.3333
11.98	1.892238	115.866	212
12	1.860323	118.866	412.6667
12.02	1.72007	123.194	401.3333
12.04	1.612709	119.6358	380.6667
12.06	1.603048	117.4162	382.6667
12.08	1.485049	111.9691	380.6667
12.1	1.442496	104.1913	383.3333
12.12	1.409603	95.29978	322.6667
12.14	1.429902	88.85267	332
12.16	1.547901	87.07756	351.3333
12.18	1.770328	81.74156	365.3333
12.2	2.015009	76.63044	372
12.22	2.174583	74.63044	372
12.24	2.407648	79.73889	378.6667
12.26	2.684243	84.51667	312.6667
12.28	2.588499	86.73889	254
12.3	2.237435	83.85	232
12.32	1.83318	94.85	229.3333
12.34	1.650373	103.0669	252.6667
12.36	1.746118	94.84467	256
12.38	1.799309	90.178	259.3333
12.4	2.001437	83.178	265.3333
12.42	2.213225	78.842	270.6667
12.44	2.479183	73.73089	276.6667
12.46	2.563311	68.61711	266
12.48	2.241229	66.60911	251.3333
12.5	2.092293	71.94244	252.6667
12.52	2.826335	64.60911	284.6667
12.54	3.347612	68.498	280
12.56	3.250889	70.49533	233.3333
12.58	2.793443	68.38422	226
12.6	2.43174	69.05089	221.3333
12.62	2.208336	80.05089	221.3333
12.64	2.378549	68.27311	228.6667
12.66	3.070038	71.38422	245.3333
12.68	3.878549	82.05089	243.3333
12.7	4.548762	91.82867	238
12.72	4.899826	95.27311	232.6667
12.74	4.548762	90.162	224.6667
12.76	3.878549	63.49533	221.3333
12.78	3.442379	53.60644	218.6667
12.8	3.080677	71.60644	217.3333
12.82	3.463655	80.60644	230

12.84	3.581654	81.72022	221.3333
12.86	3.283782	86.05356	213.3333
12.88	2.741229	87.94244	206.6667
12.9	2.314719	88.71756	202.6667
12.92	2.004253	90.71222	202.6667
12.94	1.664805	82.15933	199.3333
12.96	1.999481	90.06156	206.6667
12.98	1.947268	94.61978	219.3333
13	2.307014	89.17	232
13.02	2.467566	87.506	220.6667
13.04	2.307014	81.39222	207.3333
13.06	1.914375	77.06156	200.6667
13.08	1.669694	73.17267	203.3333
13.1	1.849567	70.39222	215.3333
13.12	2.180332	68.06156	226
13.14	2.498504	72.61444	231.3333
13.16	2.636801	77.17	228.6667
13.18	2.58361	80.61444	222.6667
13.2	2.381482	80.72556	218
13.22	2.230591	81.498	209.3333
13.24	2.134846	80.498	207.3333
13.26	2.549739	83.27578	225.3333
13.28	3.092293	85.38689	230
13.3	3.411442	89.83133	222.6667
13.32	3.697698	91.38422	217.3333
13.34	4.048762	91.05089	212
13.36	4.282804	86.60644	209.3333
13.38	4.441401	84.93711	207.3333
13.4	4.654167	70.04822	208
13.42	4.877571	64.93711	208
13.44	5.174466	67.37889	209.3333
13.46	5.558422	73.826	212
13.48	6.185104	80.93444	217.3333
13.5	7.365955	92.26778	234
13.52	8.164805	107.0482	240
13.54	7.929785	100.2678	225.3333
13.56	6.876593	97.93444	212
13.58	5.611614	91.71489	206
13.6	4.642551	75.04556	200.6667
13.62	4.02553	85.82333	196.6667
13.64	3.524552	95.93178	195.3333
13.66	3.235362	105.3709	194.6667
13.68	3.671532	110.5931	206.6667
13.7	5.173488	121.0429	244
13.72	7.957789	125.0349	264.6667
13.74	9.521618	128.4793	268.6667
13.76	9.998386	122.474	258.6667
13.78	10.25175	110.802	256

13.8	10.52835	107.2464	266
13.82	11.10281	82.91311	284.6667
13.84	12.2295	78.02156	295.3333
13.86	13.3349	84.79667	290.6667
13.88	13.39873	92.13	276
13.9	12.90741	88.68022	274.6667
13.92	6.822307	48.79133	252.6667
13.94	12.36486	74.458	302
13.96	12.53507	74.34689	304
13.98	12.69465	83.01356	306
14	12.81265	93.46067	310
14.02	12.74784	99.56911	310
14.04	12.43933	102.3469	306.6667
14.06	12.21592	104.0136	307.3333
14.08	12.20333	105.8971	312.6667
14.1	12.52248	105.3416	324.6667
14.12	13.15014	104.6749	336
14.14	13.78648	103.3362	346
14.16	13.82903	104.0029	347.3333
14.18	13.45572	104.0002	346
14.2	12.92185	104.9949	340.6667
14.22	12.34738	109.8838	336.6667
14.24	11.98372	113.7673	337.3333
14.26	12.03593	118.3202	347.3333
14.28	12.62006	119.5398	364
14.3	13.42662	112.5344	374
14.32	13.97883	106.8651	381.3333
14.34	14.16837	105.1931	384.6667
14.36	14.51747	102.9656	392
14.38	15.06871	101.5158	400
14.4	15.65186	102.7327	407.3333
14.42	15.91782	106.8438	409.3333
14.44	15.88297	112.3913	407.3333
14.46	15.74369	118.0553	402
14.48	15.50672	120.9362	399.3333
14.5	15.23978	123.6002	397.3333
14.52	14.94191	124.9336	395.3333
14.54	14.54536	125.1478	392.6667
14.56	13.99217	124.5922	380.6667
14.58	13.29775	119.4731	364
14.6	12.83932	115.4704	352
14.62	12.77451	113.9122	359.3333
14.64	12.81413	112.5709	366
14.66	12.63133	110.2322	368
14.68	12.23771	107.1211	362.6667
14.7	11.70286	103.6687	358.6667
14.72	11.2541	100.9967	354.6667
14.74	11.07325	98.77444	357.3333

14.76	10.82563	98.322	356.6667
14.78	10.52776	96.98867	354.6667
14.8	10.23955	94.54156	350
14.82	9.961974	92.09444	349.3333
14.84	9.663124	89.314	346
14.86	9.396189	85.978	343.3333
14.88	9.117637	84.19489	340.6667
14.9	8.715572	80.03667	269.3333
14.92	8.534721	77.14778	263.3333
14.94	8.470891	76.25889	260
14.96	8.598551	75.59222	261.3333
14.98	8.949615	74.48111	268.6667
15	9.300678	74.92556	274
15.02	9.534721	75.03667	277.3333
15.04	9.407061	74.37	273.3333
15.06	9.130466	73.70333	266.6667
15.08	8.788085	73.14244	262
15.1	8.479574	73.92022	258
15.12	8.266808	76.03133	256
15.14	8.233915	77.58422	256
15.16	8.467958	78.58422	262
15.18	9.031788	78.91756	273.3333
15.2	9.999873	77.69533	288.6667
15.22	11.11592	76.35933	300
15.24	11.75421	75.69267	305.3333
15.26	11.91281	77.35667	306.6667
15.28	11.90217	79.24556	306
15.3	11.76388	82.02333	305.3333
15.32	11.59171	87.35133	302.6667
15.34	11.42345	93.57889	302
15.36	11.29383	98.79578	301.3333
15.38	11.16813	101.5789	302
15.4	11.13426	101.3513	303.3333
15.42	11.30447	99.68467	311.3333
15.44	11.79286	96.90422	321.3333
15.46	12.48435	95.23756	331.3333
15.48	13.39826	93.90156	339.3333
15.5	14.31218	93.56556	350
15.52	14.88665	93.56556	354.6667
15.54	14.93886	97.34067	356.6667
15.56	14.88567	102.0073	358.6667
15.58	14.89435	107.002	362
15.6	14.88567	112.0073	364
15.62	15.00073	116.2242	369.3333
15.64	15.10614	121.1104	373.3333
15.66	15.12742	124.1104	374
15.68	15.02005	125.8856	375.3333
15.7	14.63708	126.6633	371.3333

15.72	14.28308	125.5442	368.6667
15.74	13.97457	123.4331	368
15.76	13.68636	121.6527	366
15.78	13.29176	121.65	364
15.8	12.97164	121.6473	362
15.82	12.80044	118.978	364
15.84	12.83236	115.6447	362
15.86	12.87894	111.4624	294
15.88	13.01919	107.5789	291.3333
15.9	13.17877	105.3567	292.6667
15.92	13.25324	102.1344	294
15.94	13.07239	101.2456	289.3333
15.96	12.66617	100.018	284
15.98	12.16813	100.2456	279.3333
16	11.76192	100.3513	276
16.02	11.41954	100.9016	274.6667
16.04	11.05784	102.2349	273.3333
16.06	10.75996	102.2349	272
16.08	10.66422	102.4571	273.3333
16.1	10.83248	101.2296	280.6667
16.12	11.46111	100.7878	292
16.14	12.67095	100.5576	308.6667
16.16	14.12839	99.44644	326
16.18	15.53265	98.22422	340.6667
16.2	16.62644	96.55222	351.3333
16.22	17.4775	98.99667	362
16.24	18.2212	101.5496	372
16.26	18.58095	106.0998	376.6667
16.28	18.60223	113.6553	379.3333
16.3	18.5587	121.7638	381.3333
16.32	18.35657	128.8749	382.6667
16.34	17.98325	133.2056	380
16.36	17.56836	138.8722	379.3333
16.38	17.22695	143.0918	380.6667
16.4	16.88555	140.5336	380.6667
16.42	16.52385	135.3113	380.6667
16.44	16.27623	132.5256	382.6667
16.46	16.17951	129.634	386.6667
16.48	16.19981	126.9647	394
16.5	16.45317	124.2927	402
16.52	16.88837	122.4011	410
16.54	17.3342	120.954	416.6667
16.56	17.77905	117.9487	421.3333
16.58	18.16203	116.9487	424
16.6	18.52178	118.1656	424.6667
16.62	18.9028	119.6047	425.3333
16.64	19.22195	120.8269	427.3333
16.66	19.43178	123.5967	427.3333

16.68	19.50625	127.7078	427.3333
16.7	19.67548	131.9273	427.3333
16.72	19.85536	133.4802	429.3333
16.74	20.13097	134.5887	432.6667
16.76	20.42591	136.8029	436
16.78	20.79825	138.5807	438
16.8	21.20055	140.6864	442.6667
16.84	22.26082	138.6527	322
16.86	22.99487	139.6527	329.3333
16.88	23.6438	143.5416	336.6667
16.9	24.27146	146.986	346
16.92	24.58963	150.65	353.3333
16.94	24.73857	155.3167	359.3333
16.96	24.51517	162.5389	361.3333
16.98	24.21534	169.3113	364.6667
17	24.14955	172.5282	372
17.02	23.94547	178.5229	376.6667
17.04	23.1679	179.5202	376
17.06	21.90964	182.8456	373.3333
17.08	20.68428	182.5069	369.3333
17.1	19.9599	188.3931	371.3333
17.12	19.6591	189.1629	378.6667
17.14	19.57203	191.3798	386.6667
17.16	19.36697	187.1496	390
17.18	19.03523	184.6998	390
17.2	18.64932	177.6918	390
17.22	18.01873	172.1282	387.3333
17.24	17.44132	170.898	384.6667
17.26	16.97128	168.7816	384.6667
17.28	16.4258	168.6624	381.3333
17.3	15.86001	167.4349	380
17.32	15.31648	168.8767	376.6667
17.34	14.85512	169.5327	374
17.36	14.52436	164.9744	374
17.38	14.29802	160.2998	373.3333
17.4	13.92372	157.5167	370
17.42	13.54943	153.8447	366.6667
17.44	13.31245	148.9478	366.6667
17.46	13.31245	144.2811	370
17.48	13.66156	139.3869	379.3333
17.5	14.17024	135.826	385.3333
17.52	14.64799	132.7122	390
17.54	15.04063	129.3762	394
17.56	15.3791	125.1487	396
17.58	15.50676	122.9264	392
17.6	15.88974	124.0376	397.3333
17.62	15.98353	126.4767	394
17.64	15.70693	127.6989	384.6667

17.66	14.79106	129.2518	372
17.68	13.51446	134.8073	352
17.7	12.70595	137.9184	344
17.72	12.53574	139.3629	346
17.74	13.53574	139.474	366.6667
17.76	15.63246	137.3656	391.3333
17.78	17.3868	137.474	407.3333
17.8	17.50441	139.8429	258
17.82	16.85645	136.1789	239.3333
17.8	17.50441	139.8429	258
17.82	16.85645	136.1789	239.3333
17.84	17.00144	128.6224	238
17.97	15.6258	130.2367	255.61
17.99	15.9205	132.6929	253.64
18.01	16.2152	135.1492	251.11
18.03	16.5099	137.6054	250.13
18.05	16.8046	140.0617	248.17
18.07	17.0993	142.5179	248.45
18.09	17.394	144.9741	246.9
18.11	17.6887	147.4304	246.06
18.13	17.9834	149.8866	246.06
18.15	18.2781	152.3429	246.9
18.17	18.5728	154.7991	247.89
18.19	18.8675	157.2554	247.75
18.21	19.1622	159.7116	247.75
18.23	19.4569	162.1678	247.18
18.25	19.7516	164.6241	247.18
18.27	20.0463	167.0803	246.34
18.29	20.341	169.5366	246.76
18.31	20.6357	171.9928	246.48
18.33	20.51023	170.947	245.92
18.35	20.38476	169.9013	245.64
18.37	20.25929	168.8555	246.2
18.39	20.13382	167.8098	247.6
18.41	20.00835	166.764	248.59
18.43	19.88288	165.7183	250.83
18.45	19.75741	164.6725	250.69
18.47	19.63194	163.6267	244.23
18.49	19.50647	162.581	218.96
18.51	19.381	161.5352	184.7
18.53	19.25553	160.4895	158.58
18.55	19.13006	159.4437	143.28
18.57	19.00459	158.398	139.21
18.59	18.87912	157.3522	135.84
18.61	18.75365	156.3064	136.12
18.63	18.62818	155.2607	148.9
18.65	18.50271	154.2149	154.93
18.67	18.37724	153.1692	163.08

18.69	18.25177	152.1234	172.2
18.71	18.37747	153.1711	181.33
18.73	18.50317	154.2188	189.05
18.75	18.62887	155.2664	196.5
18.77	18.75457	156.3141	202.95
18.79	18.88027	157.3618	213.2
18.81	19.00597	158.4095	218.82
18.83	19.13167	159.4571	223.17
18.85	19.25737	160.5048	228.65
18.87	19.38307	161.5525	233.84
18.89	19.50877	162.6002	238.9
18.91	19.63447	163.6478	242.41
18.93	19.76017	164.6955	245.78
18.95	19.88587	165.7432	247.46
18.97	19.63117	163.6203	251.4
18.99	19.37647	161.4975	253.92
19.01	19.12177	159.3746	264.59
19.03	18.86707	157.2518	257.57
19.05	18.61237	155.1289	254.77
19.07	18.35767	153.0061	253.5
19.09	18.10297	150.8832	252.66
19.11	17.84827	148.7604	250.27
19.13	17.59357	146.6375	247.46
19.15	17.30558	144.2372	243.81
19.17	17.01759	141.8369	243.95
19.19	16.72961	139.4366	244.52
19.21	16.44162	137.0363	244.94
19.23	16.15363	134.636	247.32
19.25	15.86565	132.2357	249.43
19.27	15.57766	129.8355	251.54
19.29	15.28967	127.4352	251.82
19.31	15.00168	125.0349	251.68
19.33	14.7137	122.6346	248.87
19.35	14.42571	120.2343	248.17
19.37	14.13772	117.834	247.46
19.39	13.84974	115.4337	246.2
19.41	13.97514	116.4789	246.34
19.43	14.10054	117.5241	243.53
19.45	14.22594	118.5692	242.55
19.47	14.35134	119.6144	241.57
19.49	14.47674	120.6596	240.3
19.51	13.818	115.1692	239.6
19.53	13.15926	109.6787	239.6
19.55	12.50052	104.1883	241.01
19.57	11.84178	98.69792	241.99
19.59	11.18304	93.2075	243.39
19.61	10.5243	87.71709	243.81
19.63	9.865556	82.22667	245.36

19.65	10.12026	84.34952	246.06
19.67	10.37496	86.47238	247.32
19.69	10.62966	88.59523	248.17
19.71	10.88436	90.71809	247.89
19.73	11.13906	92.84094	248.45
19.75	11.39376	94.96379	249.15
19.77	11.64846	97.08665	247.91
19.79	11.90316	99.2095	246.67
19.81	12.15786	101.3324	245.43
19.83	12.41256	103.4552	244.19
19.85	12.66726	105.5781	242.95
19.87	12.92196	107.7009	241.71
19.89	13.17666	109.8238	240.47
19.91	13.43136	111.9466	239.23
19.93	12.59871	114.1673	237.99
19.95	12.84871	114.1673	236.75
19.97	13.09871	114.1673	235.51
19.99	12.78952	114.1673	234.27
20.01	12.59871	114.1673	233.03
20.03	13.42752	112.1647	231.79
20.05	14.23407	108.4927	230.55
20.07	14.77565	105.3789	229.31
20.09	15.07254	107.154	228.07
20.11	15.59382	108.5984	226.83
20.13	16.30561	111.5958	225.59
20.15	17.12378	114.7042	224.35
20.17	17.1287	142.7629	223.11
20.19	16.874	140.6401	221.87
20.21	16.6193	138.5172	221.616
20.23	16.3646	136.3944	221.362
20.25	16.1099	134.2715	221.108
20.27	15.8552	132.1487	220.854
20.29	15.6005	130.0258	220.6
20.31	15.3458	127.903	220.346
20.33	15.0911	125.7801	220.092
20.35	14.8364	123.6573	220.3467
20.37	14.5817	121.5344	220.6014
20.39	14.327	119.4115	220.8561
20.41	14.0723	117.2887	221.1108
20.43	13.8176	115.1658	221.3655
20.45	13.362	100.11	223.17
20.47	13.558	105.19	228.65
20.49	13.796	110.51	233.84
20.51	13.988	113.87	238.9
20.53	14.148	115.18	242.41
20.55	14.308	115.14	245.78
20.57	14.39	114.73	247.46
20.59	14.568	114.52	251.4

20.61	14.732	116.2	253.92
20.63	14.961	115.31	264.59
20.65	15.18	113.12	257.57
20.67	15.349	113.27	254.77
20.69	15.441	113.42	253.5
20.71	15.454	113.75	252.66
20.73	15.413	113.58	250.27
20.75	15.308	113.75	247.46
20.77	15.057	116.78	243.81
20.79	15.034	118.87	243.95
20.81	15.052	120.59	244.52
20.83	15.139	122.72	244.94
20.85	15.249	124.11	247.32
20.87	15.404	124.76	249.43
20.89	15.527	124.97	251.54
20.91	15.578	125.34	251.82
20.93	15.573	125.58	251.68
20.95	15.349	124.68	248.87
20.97	15.162	122.63	248.17
20.99	14.892	120.63	247.46
21.01	14.522	118.01	246.2
21.03	14.047	117.56	246.34
21.05	13.549	118.78	243.53
21.07	12.987	119.36	242.55
21.09	12.439	119.36	241.57
21.11	12.276	118.42	240.3
21.13	11.512	117.97	239.6
21.15	11.174	117.02	239.6
21.17	10.598	113.5	241.01
21.19	10.384	112.11	241.99
21.21	10.192	109.98	243.39
21.23	10.014	108.42	243.81
21.25	9.863	106.21	245.36
21.27	9.717	103.79	246.06
21.29	9.566	101.95	247.32
21.31	9.433	99.41	248.17
21.33	9.305	96.91	247.89
21.35	9.205	94.17	248.45
21.37	9.104	91.71	249.15
21.39	8.945	88.27	250.83
21.41	8.867	86.3	251.82
21.43	8.817	84.87	253.36
21.45	8.753	83.8	253.36
21.47	8.702	82.86	254.48
21.49	8.661	81.96	254.77
21.51	8.611	81.35	255.47
21.53	8.579	80.2	255.33
21.55	8.533	79.34	255.61

21.57	8.492	78.6	255.61
21.59	8.415	77.33	256.17
21.61	8.369	76.72	256.87
21.63	8.328	76.19	256.45
21.65	8.305	75.9	256.45
21.67	8.278	75.2	256.03
21.69	8.246	74.71	256.87
21.71	8.236	74.1	256.31
21.73	8.214	73.77	256.87
21.75	8.191	73.36	256.73
21.77	8.159	72.91	257.15
21.79	8.131	72.25	256.59
21.81	8.072	71.72	257.01
21.83	8.072	71.72	257.43
21.85	8.054	71.72	256.73
21.87	8.045	71.64	257.71
21.89	8.054	71.27	257.57
21.91	8.054	71.23	257.99
21.93	8.058	71.11	257.71
21.95	8.063	70.7	258.28
21.97	8.072	70.57	258.28
21.99	8.045	70.04	258.56
22.01	8.049	69.71	257.85
22.03	7.981	69.59	257.57
22.05	7.949	69.8	257.71
22.07	7.917	69.88	257.71
22.09	7.898	69.76	257.71
22.11	7.923	70.25	257.81
22.13	7.949	70.78	257.99
22.15	7.999	71.43	258.42
22.17	8.081	72.13	259.96
22.19	8.191	73.07	260.8
22.21	8.342	73.73	262.49
22.23	8.748	74.42	265.44
22.25	9.009	74.71	265.3
22.27	9.287	74.92	266.28
22.29	9.607	75.37	266
22.31	9.954	75.86	267.4
22.33	10.352	76.47	267.54
22.35	10.776	77	267.82
22.37	11.233	78.07	267.68
22.39	11.663	78.6	267.54
22.41	12.051	78.85	266.42
22.43	12.558	81.02	265.02
22.45	12.636	82.29	264.03
22.47	12.595	81.84	262.49
22.49	12.366	81.55	261.51
22.51	12.001	82.82	258.7

22.53	11.676	84.09	257.15
22.55	11.398	86.88	255.61
22.57	11.188	88.51	255.33
22.59	11.051	89.83	255.33
22.61	10.885	88.51	263.39
22.63	10.644	87.78	269.37
22.65	10.667	89.74	266.14
22.67	10.827	93.39	263.89
22.69	10.959	94.82	264.03
22.71	11.114	95.44	263.89
22.73	11.261	95.07	263.89
22.75	11.402	93.63	264.88
22.77	11.512	92.61	265.72
22.79	11.594	90.11	267.12
22.81	11.617	89.99	267.4
22.83	11.576	90.15	267.68
22.85	11.494	90.15	266.84
22.87	11.16	90.44	265.16
22.89	11	91.42	265.3
22.91	10.877	91.38	265.02
22.93	10.708	91.63	263.75
22.95	10.516	92.98	263.33
22.97	10.388	93.68	263.05
22.99	10.347	94	264.31
23.01	10.374	94.54	266.42
23.03	10.498	94.9	269.09
23.05	10.653	95.93	270.49
23.07	10.95	96.38	270.07
23.09	11.009	95.36	270.07
23.11	11.037	94.04	269.79
23.13	11.028	93.06	269.51
23.15	10.996	92.53	270.21
23.17	10.955	92.65	270.21
23.19	10.932	92.41	269.93
23.21	10.913	92.49	270.35
23.23	10.936	92.16	270.35
23.25	11	92.37	271.47
23.27	11.073	93.35	271.47
23.29	11.206	94.95	270.49
23.31	11.252	94.58	269.51
23.33	11.215	94.29	268.81
23.35	11.114	93.88	267.68
23.37	10.913	93.06	265.3
23.39	10.667	92.69	263.75
23.41	10.397	92	262.35
23.43	10.105	91.71	261.08
23.45	9.826	91.46	260.52
23.47	9.584	91.75	259.82

23.49	9.411	91.79	259.96
23.51	9.196	91.63	262.49
23.53	9.173	91.83	264.17
23.55	9.205	92.24	265.86
23.57	9.26	93.1	267.54
23.59	9.356	93.27	269.23
23.61	9.452	92.49	270.63
23.63	9.525	91.22	271.19
23.65	9.598	90.89	271.61
23.67	9.653	90.64	271.9
23.69	9.739	90.4	271.76
23.71	9.817	89.62	271.76
23.73	9.822	88.6	271.19
23.75	9.817	87.41	271.9
23.77	9.817	86.88	273.16
23.79	9.886	86.75	274.7
23.81	10.023	86.84	274.98
23.83	10.215	87.04	277.09
23.85	10.521	87.49	278.07
23.87	10.845	87.7	279.34
23.89	11.11	88.06	279.48
23.91	11.32	89.66	277.79
23.93	11.402	91.18	276.11
23.95	11.53	93.06	272.32
23.97	11.704	95.36	271.47
23.99	12.01	96.34	272.04
24.01	12.339	96.13	275.55
24.03	12.663	95.52	278.49
24.05	12.823	94.78	280.04
24.07	12.878	94.82	279.76
24.09	12.832	94.99	276.95
24.11	12.467	96.13	271.33
24.13	12.161	96.91	268.81
24.15	11.786	98.43	267.12
24.17	11.402	98.59	265.02
24.19	11.092	98.63	264.88
24.21	10.84	99.37	263.47
24.23	10.667	99.74	264.17
24.25	10.58	100.6	264.73
24.27	10.534	101.87	265.86
24.29	10.525	102.61	267.82
24.31	10.498	102.73	269.51
24.33	10.32	102.69	272.32
24.35	10.228	101.99	272.46
24.37	10.155	101.01	273.72
24.39	10.091	99.82	274.42
24.41	10.027	98.18	274.98
24.43	9.991	96.42	275.27

24.45	9.95	95.44	276.25
24.47	9.945	94.54	276.53
24.49	9.95	94.25	278.07
24.51	9.959	94.41	278.35
24.53	10.009	94.33	279.48
24.55	10.087	94.62	280.18
24.57	10.329	94.21	281.3
24.59	10.254	87.69	287.19
24.61	10.141	83.93	287.14
24.63	10.498	83.68	286.08
24.65	11.133	86.38	281.86
24.67	11.512	87.98	282.43
24.69	11.973	89.66	282.99
24.71	12.485	91.05	282.01
24.73	13.015	92.65	283.69
24.75	13.517	93.63	283.55
24.77	13.942	93.47	282.71
24.79	14.244	93.39	283.41
24.81	14.426	95.03	282.71
24.83	14.541	97.69	282.29
24.85	14.49	100.43	280.6
24.87	14.385	101.83	280.18
24.89	14.248	103.38	278.64
24.91	14.102	106.29	277.51
24.93	14.02	109.12	278.07
24.95	13.947	111.29	278.35
24.97	13.855	112.85	277.37
24.99	13.709	112.97	276.95
25.01	13.453	115.92	274.42
25.03	13.102	119.69	273.58
25.05	12.841	121.32	273.3
25.07	12.453	122.1	274.98
25.09	12.316	122.27	276.81
25.11	12.202	122.02	278.21
25.13	12.024	121.53	277.65
25.15	11.791	119.6	277.65
25.17	11.567	118.25	277.23
25.19	11.384	117.47	277.09
25.21	11.256	116.37	276.53
25.23	11.252	116.04	278.07
25.25	11.343	116.29	279.62
25.27	11.823	116.65	282.29
25.29	12.161	116.08	282.01
25.31	12.521	114.4	282.71
25.33	12.86	112.15	281.86
25.35	13.161	110.39	282.43
25.37	13.467	108.42	283.27
25.39	13.714	107.85	284.11

25.41	13.979	107.44	283.55
25.43	14.203	108.22	284.53
25.45	14.472	110.02	286.5
25.47	14.76	111.78	285.94
25.49	15.377	116.33	287.06
25.51	15.706	118.54	287.06
25.53	16.048	120.46	288.04
25.55	16.327	123.33	289.45
25.57	16.583	125.54	288.6
25.59	16.77	126.85	287.76
25.61	16.848	127.84	285.37
25.63	16.779	127.71	284.11
25.65	16.541	129.56	284.95
25.67	16.199	131.97	283.41
25.69	15.473	135.54	279.76
25.71	15.166	136.44	278.35
25.73	14.979	137.58	278.21
25.75	14.915	139.35	279.76
25.77	14.943	140.9	282.01
25.79	15.034	141.11	282.99
25.81	15.125	140.29	283.11
25.83	15.211	139.31	284.73
25.85	15.235	139.1	284.95
25.87	15.212	137.95	284.39
25.89	14.947	133.94	282.57
25.91	14.696	131.81	280.74
25.93	14.417	128.9	278.07
25.95	14.047	127.1	278.78
25.97	13.627	126.61	276.39
25.99	13.161	127.1	275.12
26.01	12.69	127.06	274.84
26.03	12.302	126.77	273.44
26.05	11.946	126.48	273.44
26.07	11.704	126.57	273.72
26.09	11.411	124.4	276.67
26.11	11.379	123.73	278.05
26.13	11.347	122.31	280.74
26.15	11.393	121.45	283.55
26.17	11.471	120.96	285.8
26.19	11.612	120.96	288.18
26.21	11.786	120.87	290.57
26.23	11.992	119.64	291.13
26.25	12.215	117.64	292.96
26.27	12.435	115.51	293.38
26.29	12.64	113.05	294.22
26.31	13.042	110.26	293.66
26.33	13.161	109.86	293.24
26.35	13.211	109.98	292.11

26.37	13.124	109.16	290.01
26.39	12.901	107.32	287.9
26.41	12.48	107.4	283.55
26.43	11.932	108.26	281.02
26.45	11.384	109.04	278.07
26.47	10.936	109.73	275.55
26.49	10.534	109.81	273.02
26.51	10.21	110.51	272.46
26.53	9.721	110.59	272.6
26.55	9.52	109.4	272.46
26.57	9.36	109.12	273.16
26.59	9.219	107.93	273.3
26.61	8.949	106.55	274.7
26.63	8.815	104.78	280.73
26.65	8.798	101.46	292.93
26.67	8.798	99.9	292.52
26.69	8.762	98.43	289.59
26.71	8.721	97.16	288.04
26.73	8.67	95.93	287.2
26.75	8.62	93.06	286.64
26.77	8.616	92.08	287.06
26.79	8.616	91.22	287.34
26.81	8.643	90.56	288.04
26.83	8.693	89.74	288.32
26.85	8.762	89.21	288.6
26.87	8.849	88.97	290.01
26.89	8.986	88.76	291.41
26.91	9.168	88.88	292.82
26.93	9.406	89.21	294.92
26.95	10.105	90.81	296.05
26.97	10.589	91.75	296.89
26.99	11.101	92.45	297.59
27.01	11.708	93.47	297.87
27.03	12.298	94.17	298.29
27.05	12.905	94.09	297.87
27.07	13.494	94.58	298.71
27.09	14.088	95.72	298.57
27.11	14.632	97.61	298.15
27.13	15.139	100.02	299.14
27.15	16.007	106.99	300.26
27.17	16.386	111.45	299.98
27.19	16.752	116.08	300.12
27.21	17.099	120.96	299.98
27.23	17.469	125.58	297.31
27.25	17.706	128.9	298.29
27.27	17.903	133.86	298.29
27.29	18.031	138.4	297.87
27.31	15.687	187.84	225.51

27.33	16.021	175.02	212.22
27.35	16.19	156.8	211.38
27.37	16.427	141.44	219.94
27.39	16.651	129.6	238.9
27.41	17.039	121.41	261.65
27.43	17.414	116.94	284.25
27.45	18.012	119.36	306.3
27.47	18.766	119.81	325.39
27.49	19.502	122.47	341.82
27.51	20.242	122.18	351.79
27.53	21.352	111.66	362.74
27.55	22.01	110.59	367.8
27.57	22.672	114.11	362.88
27.59	22.964	117.39	370.6
27.61	23.398	122.18	354.32
27.63	23.668	124.85	347.01
27.65	23.723	128.49	340.28
27.67	23.787	130.66	349.96
27.69	23.956	135.66	351.51
27.71	24.033	142.58	356.42
27.73	24.184	149.55	358.39
27.75	24.138	154.71	363.58
27.77	24.088	159.21	365.83
27.79	24.129	161.63	365.83
27.81	24.266	164.45	366.39
27.83	24.394	169.49	365.27
27.85	24.508	171.75	367.8
27.87	24.545	174.16	365.13
27.89	24.413	173.34	364
27.91	24.326	173.96	364
27.93	24.152	172.16	362.6
27.95	23.741	172.2	362.32
27.97	23.622	172.36	361.2
27.99	23.526	173.02	361.06
28.01	23.398	174.86	362.74
28.03	23.252	175.02	364.14
28.05	23.115	174.9	363.16
28.07	22.96	174.37	363.02
28.09	22.782	174.37	361.34
28.11	22.658	174.2	362.6
28.13	22.498	174.29	361.9
28.15	22.275	174.33	362.6
28.17	22.261	174.61	365.69
28.19	22.352	173.96	368.78
28.21	22.476	174.45	371.31
28.23	22.585	174.08	372.57
28.25	22.722	173.88	371.02
28.27	22.868	174.74	372.99

28.29	23.051	176.78	373.97
28.31	23.476	178.34	376.5
28.33	23.732	177.81	377.91
28.35	24.061	176.09	378.75
28.37	24.349	175.39	379.03
28.39	24.531	174.9	382.54
28.41	24.582	175.1	378.19
28.43	24.646	176.25	378.75
28.45	24.646	177.03	376.78
28.47	24.44	179.28	372.01
28.49	24.353	179.94	368.5
28.51	24.166	180.18	364.99
28.53	23.992	181.13	364.99
28.55	23.901	180.8	367.94
28.57	23.787	181.62	361.9
28.59	23.65	181.66	361.76
28.61	23.485	182.27	361.9
28.63	23.229	183.42	359.93
28.65	22.969	184.4	358.81
28.67	22.293	184.4	355.86
28.69	21.877	183.13	354.32
28.71	21.416	182.76	352.21
28.73	20.735	168.1	358.56
28.75	20.05	163.88	368.26

Comm.	id		
Prov. Ferrara	CPTU 2		
profondità (m)	qc (Mpa)	fs (KPa)	U (kPa)
0.56	2.932873	71.90956	79.33333
0.58	2.783937	95.354	77.33333
0.6	2.614702	123.3567	78.66667
0.62	2.624363	148.2429	78
0.64	2.571171	164.1318	78.66667
0.66	2.51798	178.9096	78
0.68	2.378704	183.9069	78.66667
0.7	2.238451	184.4571	78.66667
0.72	2.236495	181.8962	78.66667
0.74	2.265477	173.7771	80.66667
0.76	2.316713	167.3273	80.66667
0.78	2.389225	160.2109	80.66667
0.8	2.428845	154.2029	80.66667
0.82	2.480081	153.0864	79.33333
0.84	2.498424	154.8562	80.66667
0.86	2.592213	158.5176	79.33333
0.88	2.58928	160.8429	79.33333
0.9	2.575708	158.3904	78.66667
0.92	2.519583	160.8269	76.66667
0.94	2.538904	159.266	71.33333
0.96	2.652992	149.8136	66
0.98	2.789335	143.586	70
1	2.881168	141.242	66
1.02	2.815383	142.57	75.33333
1.04	2.791173	146.1176	74.66667
1.06	2.799856	150.2233	74.66667
1.08	2.775646	150.4376	66
1.1	2.688584	147.5433	80.66667
1.12	2.620843	146.1993	81.33333
1.14	2.608249	139.3051	82
1.16	2.646891	129.7389	82
1.18	2.558852	123.9531	82.66667
1.2	2.480472	121.1647	82.66667
1.22	2.552985	114.6038	84.66667
1.24	2.79571	108.0429	84.66667
1.26	2.900138	108.0376	84.66667
1.28	2.897204	108.6962	84.66667
1.3	2.905887	108.1353	85.33333
1.32	2.841079	104.3549	84.66667
1.34	3.06155	98.79133	85.33333
1.36	3.336191	93.89711	85.33333
1.38	3.226874	92.00022	84.66667
1.4	3.012153	84.43933	85.33333
1.42	2.819686	78.54778	85.33333
1.44	2.765516	76.434	85.33333

1.46	2.754878	71.98956	85.33333
1.48	2.6562	69.98156	86
1.5	2.559478	68.86778	86
1.52	2.569138	66.97622	85.33333
1.54	2.590415	63.30956	86.66667
1.56	2.606685	58.82244	88
1.58	2.723706	58.71133	88
1.6	2.892941	60.48644	88.66667
1.62	3.009963	66.70867	86
1.64	3.009963	75.59756	86.66667
1.66	2.83975	88.70867	84.66667
1.68	2.722729	100.1531	78
1.7	2.61439	111.37	82.66667
1.72	2.61439	119.37	85.33333
1.74	2.570859	125.7007	85.33333
1.76	2.485753	127.1451	85.33333
1.78	2.549583	123.3673	85.33333
1.8	2.505074	122.0287	85.33333
1.82	2.471203	124.4678	85.33333
1.84	2.448949	122.5762	84.66667
1.86	2.373503	123.6847	85.33333
1.88	2.350271	123.2349	85.33333
1.9	2.389891	125.6713	86
1.92	2.367636	128.1131	86
1.94	2.324105	126.5549	85.33333
1.96	2.310534	123.2136	86
1.98	2.320194	118.8776	86
2	2.319217	118.0971	86
2.02	2.369475	113.5336	86
2.04	2.368497	112.5309	86
2.06	2.495179	108.6393	86.66667
2.08	2.545437	105.298	88
2.1	2.480629	104.1842	86.66667
2.12	2.2988	102.7371	86.66667
2.14	2.233015	99.954	86.66667
2.16	2.188506	100.8376	85.33333
2.18	2.208805	97.39044	86
2.2	2.229104	94.38778	86.66667
2.22	2.236809	87.71311	86
2.24	2.215532	79.71311	86.66667
2.26	2.171024	74.59667	86
2.28	2.201961	67.70511	86.66667
2.3	2.200983	59.48022	85.33333
2.32	2.199027	55.586	84.66667
2.34	2.19805	55.47222	86
2.36	2.218348	55.02511	85.33333
2.38	2.217371	55.24467	85.33333
2.4	2.236692	57.46156	84

2.42	2.268607	58.68378	84
2.44	2.32082	58.45889	84.66667
2.46	2.373034	58.12289	84
2.48	2.351757	58.234	85.33333
2.5	2.393333	58.12022	84.66667
2.52	2.466823	57.562	85.33333
2.54	3.036402	53.882	86.66667
2.56	3.334275	57.21533	85.33333
2.58	3.344913	64.65978	82.66667
2.6	3.078956	71.99311	78.66667
2.62	2.80236	76.43756	75.33333
2.64	2.651468	77.65444	77.33333
2.66	2.566362	80.09889	78.66667
2.68	2.459979	81.76556	79.33333
2.7	2.363256	79.76289	78.66667
2.72	2.256873	72.874	79.33333
2.74	2.181427	65.31578	79.33333
2.76	2.084705	60.42422	79.33333
2.78	2.031513	57.86867	80.66667
2.8	2.031513	56.202	79.33333
2.82	2.041174	55.19933	80.66667
2.84	2.039218	55.08289	79.33333
2.86	2.039218	55.74956	82
2.88	1.963773	57.30244	81.33333
2.9	1.824497	59.41089	82.66667
2.92	1.600115	63.51933	84.66667
2.94	1.323519	68.29711	84
2.96	1.259689	69.186	84.66667
2.98	1.301265	69.51667	86
3	1.512075	70.73356	86.66667
3.02	1.778033	72.06689	86.66667
3.04	1.935652	73.506	88
3.06	2.051695	77.50333	89.33333
3.08	2.14744	80.94778	89.33333
3.1	2.166761	88.72022	89.33333
3.12	2.133868	95.82867	90.66667
3.14	2.015869	98.04822	89.33333
3.16	1.962678	101.0482	88.66667
3.18	1.89787	104.1567	88.66667
3.2	1.843701	107.2651	89.33333
3.22	1.820469	106.5931	90.66667
3.24	1.766299	104.8127	95.33333
3.26	1.669577	99.81	95.33333
3.28	1.604769	97.14067	96.66667
3.3	1.466471	94.58511	96
3.32	1.241112	92.802	96
3.34	1.240134	85.13267	96.66667
3.36	1.345539	78.68556	96.66667

3.38	1.482859	75.68289	98
3.4	1.610519	71.46067	98
3.42	1.630817	68.458	97.33333
3.44	1.57567	67.67489	97.33333
3.46	1.542778	69.56111	98
3.48	1.563077	71.89178	98
3.5	1.490799	74.40022	84.66667
3.52	1.418286	76.62778	84
3.54	1.375733	77.62778	82.66667
3.56	1.288671	77.73356	84
3.58	1.20552	77.07222	84
3.6	1.182288	75.62244	84
3.62	1.192926	71.62244	82.66667
3.64	1.139735	68.84467	84.66667
3.66	1.17165	66.62244	82.66667
3.68	1.170672	65.17533	84
3.7	1.191948	63.73089	84
3.72	1.212247	63.28378	84
3.74	1.2548	62.506	82.66667
3.76	1.328291	61.72556	84.66667
3.78	1.296376	61.17	84
3.8	1.253823	61.05889	84
3.82	1.21127	59.61444	84
3.84	1.134846	60.83133	84
3.86	1.12323	60.93978	84
3.88	1.070038	59.60644	84.66667
3.9	1.070038	58.162	82.66667
3.92	1.069061	55.49267	84.66667
3.94	1.047784	54.826	84.66667
3.96	1.015869	53.60378	84.66667
3.98	1.110636	52.60111	84.66667
4	1.194765	53.82067	84.66667
4.02	1.290509	55.48733	85.33333
4.04	1.322424	56.70956	85.33333
4.06	1.299192	56.25978	85.33333
4.08	1.205403	56.154	84.66667
4.1	1.171532	57.482	84.66667
4.12	1.245023	56.25711	85.33333
4.14	1.372682	55.36822	85.33333
4.16	1.479065	55.92378	84.66667
4.18	1.372682	56.59044	84.66667
4.2	1.27596	60.25444	85.33333
4.22	1.488726	60.36556	85.33333
4.24	1.967449	60.47667	86.66667
4.26	2.127024	60.25444	85.33333
4.28	1.838812	58.474	85.33333
4.3	1.711152	55.14067	86
4.32	1.698558	49.91311	85.33333

4.34	1.487748	49.36289	85.33333
4.36	1.347495	49.46867	85.33333
4.38	1.18792	50.35756	85.33333
4.4	1.007069	52.02422	85.33333
4.42	0.899708	54.91044	85.33333
4.44	0.866816	57.24111	84.66667
4.46	0.91425	68.2154	94.3254
4.48	1.516495	58.96289	100.6667
4.5	1.632539	59.29356	100.6667
4.52	1.707007	62.18244	101.3333
4.54	1.643177	61.40467	101.3333
4.56	1.514539	57.84644	100
4.58	1.312412	53.51311	100.6667
4.6	1.279519	49.95489	100.6667
4.62	1.381991	49.94422	104
4.64	1.509651	49.83311	103.3333
4.66	1.275608	46.61089	103.3333
4.68	1.093779	44.386	102.6667
4.7	1.008673	47.27489	102.6667
4.72	0.934205	52.27489	102.6667
4.74	0.976758	49.94156	104
4.76	1.083141	49.16378	104
4.78	1.432249	47.26956	104.6667
4.8	1.751398	47.93622	104.6667
4.82	1.847143	45.49178	104.6667
4.84	1.835527	44.48911	104
4.86	1.888718	42.60022	104.6667
4.88	1.952548	42.48911	105.3333
4.9	1.909995	41.82244	105.3333
4.92	1.802634	42.042	104
4.94	1.696251	38.93089	104.6667
4.96	1.621783	37.70867	104
4.98	1.557953	38.93089	104.6667
5	1.366464	37.15311	104
5.02	1.164336	35.59756	104.6667
5.04	1.036677	34.70867	103.3333
5.06	0.95157	37.15311	103.3333
5.08	0.908039	41.15044	104
5.1	0.854848	42.59489	103.3333
5.12	0.886763	43.37267	103.3333
5.14	0.814367	40.62956	96
5.16	0.868537	38.18778	94
5.18	0.91109	36.96556	95.33333
5.2	0.923684	38.74867	95.33333
5.22	0.913045	40.85978	95.33333
5.24	0.934322	42.74867	93.33333
5.26	0.966237	45.082	94
5.28	0.976875	46.63756	95.33333

5.3	1.165314	51.15578	105.3333
5.32	1.186591	52.378	105.3333
5.34	1.196251	53.59756	105.3333
5.36	1.197229	55.04467	106.6667
5.38	1.186591	56.48911	105.3333
5.4	1.217528	56.26422	104.6667
5.42	1.207867	58.26689	105.3333
5.44	1.206889	59.15311	106.6667
5.46	1.238804	57.70867	105.3333
5.48	1.206889	57.81978	105.3333
5.5	1.206889	57.81978	106.6667
5.52	1.196251	58.93089	105.3333
5.54	1.163358	58.37267	105.3333
5.56	1.205912	56.81711	105.3333
5.58	1.15272	57.03933	105.3333
5.6	1.099529	57.26156	105.3333
5.62	1.034721	56.48111	104.6667
5.64	1.066636	54.14778	105.3333
5.66	1.087913	51.92556	106.6667
5.68	1.043404	50.698	104.6667
5.7	1.045359	49.48111	106.6667
5.72	1.032765	47.80911	104.6667
5.74	1.06468	47.36467	106.6667
5.76	1.032765	46.92022	105.3333
5.78	1.032765	46.03133	105.3333
5.8	1.011489	46.698	106.6667
5.82	0.967958	47.25089	105.3333
5.84	0.968936	46.58689	105.3333
5.86	0.967958	45.362	105.3333
5.88	0.958297	42.698	105.3333
5.9	0.946681	41.13978	104.6667
5.92	0.904128	41.47311	104.6667
5.94	0.89349	41.80644	104.6667
5.96	0.904128	41.47311	105.3333
5.98	0.861575	40.13978	105.3333
6	0.850937	39.69533	105.3333
6.02	0.860597	40.026	105.3333
6.04	0.860597	40.80378	104.6667
6.06	0.881874	40.91489	104.6667
6.08	0.904128	41.47311	106.6667
6.1	0.925405	42.58422	106.6667
6.12	0.914766	42.69533	104.6667
6.14	0.925405	43.13978	105.3333
6.16	0.914766	43.25089	104.6667
6.18	0.946681	42.362	105.3333
6.2	0.925405	42.13978	106.6667
6.22	0.925405	42.02867	105.3333
6.24	0.914766	41.362	105.3333

6.26	0.914766	42.362	105.3333
6.28	0.899357	44.48911	106.6667
6.3	0.899357	43.82244	106.6667
6.32	0.909995	43.82244	107.3333
6.34	0.899357	43.15578	107.3333
6.36	0.868419	42.93622	107.3333
6.38	0.846165	42.378	106.6667
6.4	0.856803	41.378	107.3333
6.42	0.856803	40.82244	106.6667
6.44	0.867442	40.04467	107.3333
6.46	0.867442	38.93356	105.3333
6.48	0.846165	38.71133	106.6667
6.5	0.846165	38.378	106.6667
6.52	0.81425	38.04467	107.3333
6.54	0.803612	37.71133	107.3333
6.56	0.835527	37.48911	107.3333
6.58	0.81425	37.48911	106.6667
6.6	0.803612	37.71133	107.3333
6.62	0.803612	37.15578	108
6.64	0.782335	37.15578	107.3333
6.66	0.783313	37.15844	107.3333
6.68	0.783313	36.93622	107.3333
6.7	0.782335	37.04467	107.3333
6.72	0.739782	37.15578	106.6667
6.74	0.718505	37.60022	106.6667
6.76	0.697229	38.04467	107.3333
6.78	0.697229	37.15578	106.6667
6.8	0.718505	36.378	106.6667
6.82	0.730122	35.714	106.6667
6.84	0.718505	34.93356	107.3333
6.86	0.75042	33.71133	107.3333
6.88	0.771697	32.93356	108
6.9	0.739782	32.82244	108
6.92	0.739782	33.15578	108
6.94	0.739782	33.378	108
6.96	0.751398	32.82511	108
6.98	0.772675	33.26956	108.6667
7	0.792974	33.93356	108.6667
7.02	0.836504	33.49178	108.6667
7.04	0.889696	33.49178	108
7.06	0.857781	36.15844	108.6667
7.08	0.836504	39.04733	108
7.1	0.793951	41.38067	108
7.12	0.77463	44.27489	108.6667
7.14	0.742715	47.386	108
7.16	0.732077	50.386	108
7.18	0.721439	51.83044	108.6667
7.2	0.700162	52.94156	108

7.22	0.689524	53.49711	108
7.24	0.689524	52.83044	107.3333
7.26	0.705051	50.51044	108.6667
7.28	0.736966	47.51044	108.6667
7.3	0.736966	46.28822	108
7.32	0.736966	45.73267	108
7.34	0.736966	44.95489	108
7.36	0.683774	46.066	108.6667
7.38	0.641221	46.73267	108.6667
7.4	0.619945	48.066	107.3333
7.42	0.58803	46.95489	107.3333
7.44	0.557093	45.06867	107.3333
7.46	0.556115	42.066	107.3333
7.48	0.567731	39.402	105.3333
7.5	0.589008	35.73533	105.3333
7.52	0.611262	33.40467	107.3333
7.54	0.6219	32.29356	106.6667
7.56	0.643177	31.07133	105.3333
7.58	0.674114	30.06867	107.3333
7.6	0.6219	30.51578	105.3333
7.62	0.643177	31.07133	106.6667
7.64	0.674114	31.06867	107.3333
7.66	0.736966	30.39933	108
7.68	0.79884	29.83844	108.6667
7.7	0.809478	30.28289	108.6667
7.72	0.745649	28.83844	107.3333
7.74	0.692457	28.394	107.3333
7.76	0.630583	26.17711	106.6667
7.78	0.663476	25.29089	106.6667
7.8	0.726328	25.95489	107.3333
7.82	0.81339	25.84911	108
7.84	0.781475	27.29356	107.3333
7.86	0.781475	28.29356	107.3333
7.88	0.760198	28.96022	107.3333
7.9	0.696368	30.51578	107.3333
7.92	0.68573	32.51578	108
7.94	0.728283	33.18244	108.6667
7.96	0.792113	33.84911	108
7.98	0.814367	33.18511	107.3333
8	0.815345	33.85444	106.6667
8.02	0.78343	35.74333	106.6667
8.04	0.794069	35.41	106.6667
8.06	0.817301	34.41533	107.3333
8.08	0.825983	35.41	106.6667
8.1	0.825983	36.29889	107.3333
8.12	0.857898	36.96556	107.3333
8.14	0.868537	36.41	107.3333
8.16	0.879175	37.41	108

8.18	0.857898	37.52111	108
8.2	0.825983	36.52111	106.6667
8.22	0.815345	36.52111	107.3333
8.24	0.872448	36.64289	108.6667
8.26	0.872448	36.64289	108.6667
8.28	0.851171	36.42067	108
8.3	0.755544	35.33889	101.3333
8.32	0.705286	35.23578	99.33333
8.34	0.695625	35.01622	98
8.36	0.811551	34.65089	106.6667
8.38	0.861809	34.19844	108.6667
8.4	0.850193	35.19578	107.3333
8.42	0.850193	35.418	108.6667
8.44	0.818278	35.418	107.3333
8.46	0.80764	35.19578	108
8.48	0.818278	34.97356	108.6667
8.5	0.79798	34.42067	108
8.52	0.797002	34.08467	108
8.54	0.797002	33.86244	108
8.56	0.79798	33.19844	108
8.58	0.765087	32.97356	107.3333
8.6	0.733172	33.75133	108
8.62	0.73415	32.97622	107.3333
8.64	0.692574	32.86778	105.3333
8.66	0.715807	31.98422	106.6667
8.68	0.715807	30.762	105.3333
8.7	0.747722	30.762	106.6667
8.72	0.749677	30.87844	105.3333
8.74	0.708102	31.32556	102.6667
8.76	0.628862	31.34156	100
8.78	0.676187	31.99222	104
8.8	0.695508	31.65356	105.3333
8.82	0.73415	31.754	108
8.84	0.703213	31.75667	106.6667
8.86	0.706146	30.87578	105.3333
8.88	0.738061	29.87578	106.6667
8.9	0.680098	29.114	102.6667
8.92	0.67912	28.55578	103.3333
8.94	0.687803	28.32822	103.3333
8.96	0.701374	28.00289	102.6667
8.98	0.712013	28.55844	102.6667
9	0.712013	29.114	102.6667
9.02	0.664688	30.46333	98
9.04	0.632773	31.13	97.33333
9.06	0.612474	32.24378	99.33333
9.08	0.538006	32.35489	98
9.1	0.538006	32.35489	98
9.12	0.538006	33.466	97.33333

9.14	0.517707	33.802	98
9.16	0.51673	34.02156	99.33333
9.18	0.528346	32.57978	99.33333
9.2	0.585448	34.81267	102.6667
9.22	0.63864	33.81267	103.3333
9.24	0.63864	32.03489	102.6667
9.26	0.617363	30.92378	101.3333
9.28	0.63864	31.70156	103.3333
9.3	0.637662	33.03222	102.6667
9.32	0.596087	33.36822	101.3333
9.34	0.606725	34.47933	102.6667
9.36	0.585448	36.59044	103.3333
9.38	0.57481	38.47933	103.3333
9.4	0.552556	39.47667	101.3333
9.42	0.553533	38.92378	103.3333
9.44	0.541917	39.81	102.6667
9.46	0.552556	40.69889	103.3333
9.48	0.552556	40.92111	102.6667
9.5	0.58447	41.47667	103.3333
9.52	0.541917	41.92111	103.3333
9.54	0.541917	43.03222	103.3333
9.56	0.531279	42.58778	102.6667
9.58	0.520641	42.25444	102.6667
9.6	0.499364	42.47667	103.3333
9.62	0.540939	41.58511	102.6667
9.64	0.530301	41.02956	102.6667
9.66	0.519663	39.69622	103.3333
9.68	0.631678	40.65356	112.6667
9.7	0.639383	40.53444	114
9.72	0.6307	40.65089	114
9.74	0.598785	39.53978	112
9.76	0.628745	37.42333	114
9.78	0.650021	35.31222	114
9.8	0.639383	35.31222	112.6667
9.82	0.639383	35.42333	112.6667
9.84	0.650021	34.09	114.6667
9.86	0.651977	34.20644	114
9.88	0.671298	35.42333	112.6667
9.9	0.69453	35.42867	114
9.92	0.705168	35.20644	112.6667
9.94	0.705168	35.42867	114
9.96	0.695508	35.87578	112.6667
9.98	0.695508	36.32022	112.6667
10	0.68487	36.43133	112
10.02	0.683892	36.65089	112
10.04	0.706146	37.43133	112.6667
10.06	0.643411	35.90778	105.3333
10.08	0.633751	36.02156	104

10.1	0.613452	36.35756	103.3333
10.12	0.613452	36.69089	103.3333
10.14	0.602814	36.02422	103.3333
10.16	0.8451	38.2145	109.324
10.18	0.913163	41.778	116
10.2	0.956694	40.114	116
10.22	0.865838	38.68289	112
10.24	0.721791	38.80733	110
10.26	0.501437	34.28911	98
10.28	0.618458	31.178	99.33333
10.3	0.733524	31.39489	101.3333
10.32	0.903619	32.58778	108.6667
10.34	0.882343	31.81	108.6667
10.36	0.734384	32.146	108
10.38	0.533352	27.95578	100
10.4	0.514031	26.51667	99.33333
10.42	0.514031	25.85	99.33333
10.44	0.589477	26.51933	99.33333
10.46	0.557562	26.74156	99.33333
10.48	0.546923	27.07489	98
10.5	0.493732	27.186	97.33333
10.52	0.472455	26.74156	98
10.54	0.451179	26.85267	97.33333
10.56	0.589477	27.07489	98
10.58	0.653306	27.85267	99.33333
10.6	0.748073	28.07222	99.33333
10.62	0.749051	30.51933	98
10.64	0.780966	30.63044	99.33333
10.66	0.631052	29.73889	98
10.68	0.514031	28.96111	97.33333
10.7	0.503392	28.07222	98
10.72	0.483094	27.51933	98
10.74	0.483094	27.96378	99.33333
10.76	0.482116	28.07222	99.33333
10.78	0.472455	27.74156	99.33333
10.8	0.483094	27.186	98
10.82	0.471478	27.07222	98
10.84	0.482116	26.62778	99.33333
10.86	0.451179	26.63044	99.33333
10.88	0.450201	26.62778	97.33333
10.9	0.44054	26.29711	99.33333
10.92	0.44054	26.74156	99.33333
10.94	0.439563	27.29444	98
10.96	0.450201	27.18333	99.33333
10.98	0.471478	27.29444	98
11	0.471478	27.96111	98
11.02	0.492754	27.40556	98
11.04	0.514031	27.51667	98

11.06	0.77682	31.33889	118.6667
11.08	0.743928	32.55844	118.6667
11.1	0.743928	33.44733	119.3333
11.12	0.702352	34.56111	119.3333
11.14	0.664688	34.68556	116
11.16	0.539101	33.38689	107.3333
11.18	0.601836	34.68822	114.6667
11.2	0.641456	35.23578	116
11.22	0.609541	34.79133	116
11.24	0.581537	33.57978	112.6667
11.26	0.600858	32.24111	115.3333
11.28	0.6395	31.45267	117.3333
11.3	0.641456	30.458	116
11.32	0.650139	30.45267	117.3333
11.34	0.643411	30.13	115.3333
11.36	0.509142	28.50333	106.6667
11.38	0.499481	28.506	104.6667
11.4	0.585565	29.95311	104.6667
11.42	0.830246	30.95311	107.3333
11.44	0.894076	27.95311	110.6667
11.46	0.936629	36.06422	111.3333
11.48	0.862161	38.95311	112.6667
11.5	0.713225	42.842	114.6667
11.52	0.787693	44.06422	117.3333
11.54	0.862161	43.73089	118.6667
11.56	0.936629	43.842	120
11.58	0.903737	42.61711	120
11.6	0.81863	42.61711	120
11.62	0.744162	43.506	119.3333
11.64	0.680332	43.17267	118.6667
11.66	0.658078	45.83667	119.3333
11.68	0.605864	47.95044	118.6667
11.7	0.584588	49.83933	119.3333
11.72	0.58361	52.05889	120
11.74	0.58361	51.05889	119.3333
11.76	0.592293	52.05356	120
11.78	0.602931	52.38689	119.3333
11.8	0.645484	52.38689	120
11.82	0.698676	52.72022	120
11.84	0.718974	52.49533	120
11.86	0.718974	53.162	120
11.88	0.717997	54.15933	121.3333
11.9	0.664805	54.826	120
11.92	0.622252	56.38156	121.3333
11.94	0.578721	56.37889	121.3333
11.96	0.546806	55.04556	121.3333
11.98	0.52553	51.71222	121.3333
12	0.52553	44.49	121.3333

12.02	0.564289	43.28644	118.6667
12.04	0.553651	39.39756	118
12.06	0.543012	36.61978	118.6667
12.08	0.532374	34.842	118.6667
12.1	0.553651	34.06422	118.6667
12.12	0.61748	31.73089	118
12.14	0.670672	31.17533	119.3333
12.16	0.777055	31.50867	119.3333
12.18	1.032374	31.842	120
12.2	1.38246	32.72822	120
12.22	1.606842	36.95311	121.3333
12.24	1.74514	42.61978	120
12.26	1.627141	43.28378	120
12.28	1.436629	38.50867	120
12.3	1.191948	34.61978	119.3333
12.32	1.000459	34.17533	118.6667
12.34	0.915353	32.73089	118.6667
12.36	1.053651	35.06422	119.3333
12.38	1.149395	37.50867	120
12.4	1.287693	39.06422	120
12.42	1.255778	38.95311	120
12.44	1.127141	35.17267	120
12.46	1.01012	32.95044	118.6667
12.48	0.915353	30.95311	119.3333
12.5	0.765439	30.83933	118.6667
12.52	0.670672	31.50867	118.6667
12.54	0.616503	32.28378	119.3333
12.56	0.584588	32.72822	119.3333
12.58	0.552673	33.06156	120
12.6	0.531396	32.28378	119.3333
12.62	0.531396	29.95044	119.3333
12.64	0.552673	27.39489	120
12.66	0.604887	26.28111	120
12.68	0.779754	27.458	132
12.7	0.887975	28.10067	137.3333
12.72	0.941166	27.65622	137.3333
12.74	0.920868	28.32556	136
12.76	0.920868	29.54778	137.3333
12.78	0.930528	29.65622	137.3333
12.8	0.943122	29.21711	136.6667
12.82	0.982742	29.32022	137.3333
12.84	0.994358	31.434	137.3333
12.86	0.975037	32.77267	136.6667
12.88	1.047549	33.21178	138
12.9	1.047549	34.10067	136.6667
12.92	1.094014	35.22244	136.6667
12.94	1.122017	37.87844	137.3333
12.96	1.185847	39.434	138

12.98	1.217762	40.65622	137.3333
13	1.232312	45.44467	138
13.02	1.187803	47.43933	138
13.04	1.168482	48.55578	139.3333
13.06	1.128862	49.786	136
13.08	0.956928	48.17267	123.3333
13.1	0.947268	48.06422	122
13.12	0.904714	49.17533	123.3333
13.14	1.070782	52.66156	138
13.16	0.961583	53.68289	134
13.18	0.930645	53.24111	132.6667
13.2	0.88907	55.91044	130.6667
13.22	0.840767	56.36822	126.6667
13.24	0.744162	56.39489	122.6667
13.26	0.712247	56.83933	121.3333
13.28	0.712247	55.17267	121.3333
13.3	0.722886	53.83933	122
13.32	0.712247	52.28378	122
13.34	0.712247	50.72822	122
13.36	0.680332	48.95044	122
13.38	0.648417	47.06156	121.3333
13.4	0.658078	45.28111	122
13.42	0.658078	44.94778	121.3333
13.44	0.658078	43.50333	122
13.46	0.64744	42.83667	122
13.48	0.645484	43.38689	121.3333
13.5	0.677399	42.72022	122
13.52	0.698676	41.498	122
13.54	0.730591	40.27578	122
13.56	0.719952	40.16467	122
13.58	0.718974	40.27311	122.6667
13.6	0.708336	40.162	121.3333
13.62	0.697698	40.82867	121.3333
13.64	0.697698	41.60644	122
13.66	0.676421	43.05089	122
13.68	0.697698	43.05089	122
13.7	0.676421	42.71756	122
13.72	0.655145	43.05089	122
13.74	0.643529	42.15933	122
13.76	0.655145	41.38422	122.6667
13.78	0.622252	40.38156	122
13.8	0.591315	39.05089	122.6667
13.82	0.579699	37.04822	122
13.84	0.590337	35.49267	122.6667
13.86	0.590337	35.04822	122.6667
13.88	0.622252	34.49267	122.6667
13.9	0.622252	34.49267	122.6667
13.92	0.622252	34.49267	122

13.94	0.616503	36.06156	123.3333
13.96	0.628119	35.95311	123.3333
13.98	0.627141	35.17267	123.3333
14	0.627141	34.28378	122.6667
14.02	0.660034	33.06422	123.3333
14.04	0.61748	33.50867	123.3333
14.06	0.606842	34.06422	124.6667
14.08	0.584588	34.61711	123.3333
14.1	0.584588	35.17267	124.6667
14.12	0.605864	34.61711	124.6667
14.14	0.659056	34.17267	123.3333
14.16	0.669694	34.06156	124.6667
14.18	0.668716	34.72556	124.6667
14.2	0.668716	34.17	124.6667
14.22	0.669694	33.506	124.6667
14.24	0.679355	32.83667	125.3333
14.26	0.669694	33.39489	124.6667
14.28	0.679355	34.72556	125.3333
14.3	0.659056	35.06156	126
14.32	0.668716	35.28111	125.3333
14.34	0.658078	36.28111	124.6667
14.36	0.615525	38.39222	125.3333
14.38	0.615525	39.61444	124.6667
14.4	0.626163	40.17	125.3333
14.42	0.604887	41.39222	124.6667
14.44	0.64744	41.05889	125.3333
14.46	0.658078	40.83667	125.3333
14.48	0.668716	40.83667	125.3333
14.5	0.677399	41.498	126
14.52	0.679355	42.17	126
14.54	0.658078	43.28111	125.3333
14.56	0.679355	44.05889	125.3333
14.58	0.732546	43.05889	126
14.6	0.764461	42.72556	126
14.62	0.783782	42.498	126
14.64	0.773144	43.27578	126.6667
14.66	0.773144	44.27578	126.6667
14.68	0.762505	44.60911	126.6667
14.7	0.741229	45.72022	126.6667
14.72	0.773144	46.27578	126.6667
14.74	0.79442	44.94244	126.6667
14.76	0.793443	44.60644	127.3333
14.78	0.835996	42.82867	128.6667
14.8	0.825357	41.05089	127.3333
14.82	0.814719	39.162	127.3333
14.84	0.782804	37.71756	129.3333
14.86	0.772166	37.71756	128.6667
14.88	0.793443	37.60644	129.3333

14.9	1.005974	41.32556	146.6667
14.92	1.028228	41.21711	147.3333
14.94	1.037889	40.77	147.3333
14.96	1.048527	40.10333	148
14.98	1.027251	40.99222	146.6667
15	1.048527	40.21444	147.3333
15.02	1.070782	39.43933	148
15.04	1.070782	37.88378	148
15.06	1.069804	36.65889	148
15.08	1.069804	36.88111	148
15.1	1.059165	35.43667	148
15.12	1.048527	34.65889	148
15.14	1.069804	33.77	148
15.16	1.09108	33.21444	147.3333
15.18	1.068826	33.21178	148
15.2	1.143294	33.32289	147.3333
15.22	1.175209	32.54511	148
15.24	1.175209	33.76733	148.6667
15.26	1.122995	34.99222	148
15.28	1.059165	37.10333	148
15.3	1.043756	36.00822	144
15.32	1.011958	33.25978	137.3333
15.34	1.159916	32.146	138
15.36	1.378314	35.10333	149.3333
15.38	1.420868	36.65889	149.3333
15.4	1.474059	38.10333	149.3333
15.42	1.538867	39.32822	150.6667
15.44	1.405575	40.92644	140.6667
15.46	1.537889	42.99222	150.6667
15.48	1.560143	43.99489	149.3333
15.5	1.634611	45.43933	151.3333
15.52	1.71874	47.88111	152
15.54	1.857038	48.54778	152.6667
15.56	1.910229	51.77	152.6667
15.58	1.803846	59.32556	152
15.6	1.740017	63.88111	151.3333
15.62	1.697463	66.10333	152
15.64	1.644272	64.54778	150.6667
15.66	1.59108	64.32556	151.3333
15.68	1.558188	66.65622	151.3333
15.7	1.504996	65.76733	152
15.72	1.515635	63.32289	152
15.74	1.589125	60.87578	152.6667
15.76	1.706146	59.54244	152.6667
15.78	1.759338	60.98689	152.6667
15.8	1.855082	61.43133	154.6667
15.82	1.886997	61.54244	154
15.84	1.928573	61.65089	154

15.86	1.907296	63.98422	154.6667
15.88	1.972104	67.54244	156.6667
15.9	1.972104	70.32022	158.6667
15.92	2.025295	71.32022	158.6667
15.94	2.035933	71.43133	159.3333
15.96	2.089125	73.32022	158.6667
15.98	2.216784	73.98689	159.3333
16	2.355082	75.32022	159.3333
16.02	2.397635	79.65356	158.6667
16.04	2.504996	82.65622	158.6667
16.06	2.504996	88.54511	158
16.08	2.452783	95.88111	156.6667
16.1	2.400569	98.55044	156
16.12	2.381248	102.6669	154.6667
16.14	2.307757	101.6696	152.6667
16.16	2.244905	100.7833	152
16.18	2.162732	99.12467	150.6667
16.2	2.019663	96.25178	145.3333
16.22	2.021618	90.36822	144.6667
16.24	1.903619	86.81	144.6667
16.26	1.946173	86.14333	144.6667
16.28	1.871704	86.69889	148
16.3	1.817535	81.69622	148.6667
16.32	1.826218	73.13533	148.6667
16.34	1.804941	68.91311	148
16.36	1.814602	67.57711	148.6667
16.38	1.813624	61.57444	148.6667
16.4	1.941284	53.57444	149.3333
16.42	1.981881	49.79133	148.6667
16.44	2.194413	51.51044	164
16.46	2.311434	49.84378	163.3333
16.48	2.397518	50.29089	163.3333
16.5	2.409134	48.84911	161.3333
16.52	2.325983	52.29889	159.3333
16.54	2.350311	54.114	150.6667
16.56	2.6395	54.89711	151.3333
16.58	2.947033	60.33889	152.6667
16.6	3.158821	64.22511	154
16.62	2.955716	65.778	155.3333
16.64	2.700397	69.22244	155.3333
16.66	2.381248	73.33356	154.6667
16.68	2.358016	74.99489	154.6667
16.7	2.399591	69.10333	155.3333
16.72	2.559165	69.99222	156
16.74	2.515635	72.21178	156.6667
16.76	2.409252	76.87844	156.6667
16.78	2.227423	70.87578	156
16.8	2.226445	66.98422	156

16.82	2.394702	64.09	158.6667
16.84	3.551343	95.30422	165.3333
16.86	3.253471	100.3042	165.3333
16.88	2.94496	89.85978	164
16.9	2.455599	80.74867	162
16.92	2.147088	79.52644	162
16.94	2.166409	70.85444	163.3333
16.96	2.210918	65.85978	162.6667
16.98	2.400452	65.52111	163.3333
17	2.453643	65.96556	162.6667
17.02	2.644155	64.85178	163.3333
17.04	2.803729	67.18511	164
17.06	3.11224	69.74067	165.3333
17.08	3.387858	67.51578	165.3333
17.1	3.325006	76.40733	165.3333
17.12	3.260198	77.18244	165.3333
17.14	3.781475	74.51578	167.3333
17.16	4.760198	80.07133	167.3333
17.18	6.918795	91.73533	172.6667
17.2	8.801774	88.62422	173.3333
17.22	8.482625	97.402	171.3333
17.24	7.046454	83.06867	168
17.26	5.748582	65.95756	166.6667
17.28	4.74956	62.84911	164
17.3	4.016495	65.29622	161.3333
17.32	3.686708	77.40733	161.3333
17.34	3.669342	80.52911	160
17.36	3.92075	84.29622	162.6667
17.38	3.94496	81.97089	160
17.4	4.049388	90.29889	162
17.42	4.333688	104.9576	164
17.44	4.671181	108.8384	166.6667
17.46	5.244671	103.3913	167.3333
17.48	5.521267	111.8358	167.3333
17.5	5.83846	112.386	167.3333
17.52	4.611379	103.9896	156
17.54	3.748699	100.6536	154
17.56	2.918912	82.98689	152.6667
17.58	2.386997	95.98689	152
17.6	1.832828	109.4287	151.3333
17.62	1.588147	99.42867	152.6667
17.64	1.586191	85.09	154.6667
17.66	1.563937	84.97622	154.6667
17.68	1.712873	72.42067	154.6667
17.7	2.584236	61.64022	156.6667
17.72	4.764109	59.30422	160
17.74	5.797745	59.91756	172.6667
17.76	6.476641	56.80111	173.3333

17.78	6.774513	67.69	173.3333
17.8	6.850076	74.94422	170.6667
17.82	7.424544	62.38867	171.3333
17.84	8.669225	70.16644	174
17.86	10.83944	84.83311	178.6667
17.88	13.74369	95.38867	180
17.9	16.11603	105.8331	170.6667
17.92	16.91293	111.2749	170.6667
17.94	16.52995	94.16378	170
17.96	16.08314	87.94156	170
17.98	15.4748	89.60289	169.3333
18	14.54059	90.05267	167.3333
18.02	13.42454	98.49978	166
18.04	11.96428	105.9656	158
18.06	11.08901	105.9576	161.3333
18.08	9.929433	100.2909	159.3333
18.1	8.54841	96.074	155.3333
18.12	7.251515	93.41	154
18.14	6.505739	89.82244	158
18.16	6.119827	85.92556	160
18.18	5.681702	79.58689	161.3333
18.2	5.381991	77.16644	154
18.22	5.317183	74.60822	154
18.24	5.198207	73.26956	154.6667
18.26	5.148809	76.47311	158
18.28	5.265713	80.666	164
18.3	5.316949	85.88289	166.6667
18.32	5.549036	83.76644	166.6667
18.34	5.760824	81.986	166.6667
18.36	5.824654	72.54156	167.3333
18.38	5.993889	69.31667	168
18.4	6.186356	63.31933	168
18.42	6.282101	55.43044	167.3333
18.44	6.494867	50.43044	169.3333
18.46	6.707633	51.87489	168
18.48	6.930059	55.87222	169.3333
18.5	6.876868	60.98333	168
18.52	6.727931	61.53889	169.3333
18.54	6.514188	54.75844	170
18.56	6.31206	48.98067	168
18.58	6.195039	47.42511	169.3333
18.6	6.216315	52.42511	168
18.62	6.406827	57.31133	169.3333
18.64	6.659213	63.97	172.6667
18.66	7.115682	70.07844	173.3333
18.68	7.573129	72.52289	173.3333
18.7	7.893255	70.63667	173.3333
18.72	7.914532	63.85889	173.3333

18.74	7.574106	52.85889	171.3333
18.76	7.162146	44.978	170.6667
18.78	6.841393	41.94956	155.3333
18.8	7.247604	43.84378	156
18.82	8.0242	51.62156	158
18.84	8.727305	63.402	158.6667
18.86	9.301774	73.06867	158.6667
18.88	9.779519	81.17711	159.3333
18.9	9.873308	82.61622	158.6667
18.92	9.857664	78.12911	169.3333
18.94	9.548175	57.12644	168
18.96	9.292856	48.79311	167.3333
18.98	9.16813	53.46778	166.6667
19	9.208728	63.12911	166.6667
19.02	9.432132	70.90689	166.6667
19.04	9.763875	73.24556	166.6667
19.06	10.01431	71.56556	169.3333
19.08	10.24933	70.67933	169.3333
19.1	10.31316	68.79044	168
19.12	10.43886	69.56289	169.3333
19.14	10.70286	71.44644	170
19.16	11.13035	74.22956	170
19.18	11.74541	76.66867	171.3333
19.2	12.41269	79.88289	172.6667
19.22	13.22316	82.99933	173.3333
19.24	13.95329	85.65533	174.6667
19.26	14.66508	88.43044	175.3333
19.28	15.24921	93.31667	177.3333
19.3	15.9281	98.42244	177.3333
19.32	16.69406	103.2002	180
19.34	17.45806	110.1949	178.6667
19.36	18.04219	118.0811	180.6667
19.38	18.41355	124.1896	181.3333
19.4	18.49768	126.7424	180.6667
19.42	18.1756	127.8456	180.6667
19.44	17.75007	129.0678	181.3333
19.46	17.37577	131.3958	182
19.48	17.20263	131.0544	180.6667
19.5	16.96761	129.7184	182
19.52	16.80705	126.938	182
19.54	16.5614	125.1576	181.3333
19.56	16.43178	123.0411	181.3333
19.58	16.26059	119.2607	181.3333
19.6	15.98302	117.1469	181.3333
19.62	15.55748	115.9247	180.6667
19.64	15.48681	116.5727	184
19.66	15.48388	117.898	184.6667
19.68	15.50418	116.1176	184.6667

19.7	15.39107	114.2393	182
19.72	15.30878	114.8847	184.6667
19.74	15.24495	114.6624	184
19.76	15.3128	109.7024	180.6667
19.78	15.73834	110.7024	180
19.8	16.69578	113.0358	181.3333
19.82	17.7277	116.4802	180.6667
19.84	18.85536	116.0358	182.6667
19.86	19.90757	117.1442	184
19.88	20.94915	120.4749	184.6667
19.9	21.62034	123.922	184
19.92	21.97629	129.602	180
19.94	21.94621	139.578	185.3333
19.96	21.60493	148.7158	178
19.98	22.22195	156.0491	180
20	23.50234	163.4749	185.3333
20.02	24.24983	172.5647	190
20.04	24.81269	175.2287	191.3333
20.06	24.81073	169.6678	192
20.08	24.08439	152.9931	186
20.1	22.4335	134.8767	182.6667
20.12	20.60078	126.8687	182
20.14	19.05529	126.8607	180.6667
20.16	17.96725	124.186	180
20.18	17.3067	123.1833	180
20.2	17.15679	128.1807	180.6667
20.22	17.25156	128.8447	182
20.24	17.28054	126.0589	182.6667
20.26	17.1519	116.6118	182.6667
20.28	16.95748	108.3816	184
20.3	16.68479	103.7256	181.3333
20.32	16.8385	102.3762	184
20.34	17.24178	110.0402	185.3333
20.36	17.76208	135.3709	185.3333
20.38	18.8017	145.5851	188.6667
20.4	19.96995	145.5798	190
20.42	20.81038	142.9131	190
20.44	20.78617	145.794	190
20.46	19.92165	151.5931	184
20.48	19.12378	146.482	182
20.5	18.4642	148.7042	180.6667
20.52	18.44097	151.1433	180.6667
20.54	18.70595	150.5851	182.6667
20.56	19.05604	150.138	184
20.58	19.75523	144.3522	186
20.6	20.43315	138.0109	188
20.62	20.81515	130.4527	188
20.64	21.02889	124.3442	186

20.66	20.8983	120.2251	188.6667
20.68	20.48145	117.8864	188
20.7	20.24057	123.9789	192
20.72	19.64517	136.6224	182
20.74	19.25253	139.4029	180
20.76	18.75253	141.6251	178
20.78	18.06104	145.2918	178
20.8	17.47594	149.514	176.6667
20.82	17.1036	148.0696	175.3333
20.84	16.75547	144.8553	173.3333
20.86	16.41406	145.8527	170.6667
20.88	16.22257	143.5193	170.6667
20.9	16.06202	140.6278	170.6667
20.92	15.77381	136.9584	170
20.94	15.43241	133.0669	170
20.96	15.06875	128.8393	169.3333
20.98	14.86662	125.7282	167.3333
21	14.82309	122.5033	169.3333
21.02	14.89658	121.7229	168
21.04	15.01262	119.8313	170
21.06	15.12769	117.7149	169.3333
21.08	15.28629	115.3789	171.3333
21.1	15.42263	113.5958	170.6667
21.12	15.56093	112.818	170.6667
21.14	15.80561	110.9291	170.6667
21.16	16.29106	108.1407	174
21.18	16.97289	106.1433	173.3333
21.2	17.87519	105.4713	175.3333
21.22	18.91774	108.4713	177.3333
21.24	19.57915	110.0029	182
21.26	20.13528	110.8998	181.3333
21.28	20.46018	114.8864	184.6667
21.3	20.7155	119.7753	184.6667
21.32	20.79962	124.6616	186
21.34	20.72516	128.4393	186
21.36	20.4998	134.2118	185.3333
21.38	20.25511	139.8784	186
21.4	19.71256	142.8784	185.3333
21.42	18.94856	143.106	182.6667
21.44	18.3818	144.6536	182.6667
21.46	17.85954	144.2064	182.6667
21.48	17.47559	142.426	184
21.5	17.24057	137.8678	184.6667
21.52	17.12354	134.09	185.3333
21.54	17.07904	128.9736	185.3333
21.56	17.10031	123.0847	186
21.58	17.25891	115.3042	186
21.6	17.44942	110.9682	187.3333

21.62	17.73665	108.6349	188
21.64	17.98036	108.0767	188.6667
21.66	18.21244	108.0713	188.6667
21.68	18.37202	111.738	188
21.7	17.87542	125.4189	174
21.72	18.69457	112.1967	174
21.74	19.06789	110.3104	174.6667
21.76	19.28065	112.0882	174.6667
21.78	19.3764	113.5327	174
21.8	19.36478	115.53	174.6667
21.82	19.19359	117.7496	174
21.84	18.94891	120.9718	174
21.86	18.5427	124.7442	173.3333
21.88	18.22257	129.4082	173.3333
21.9	17.92372	130.6278	172.6667
21.92	17.89083	130.9584	172.6667
21.94	18.17709	133.2891	174
21.96	18.66645	133.7336	174.6667
21.98	19.16352	130.7256	177.3333
22	19.70509	126.6118	178
22.02	20.47007	123.7202	180
22.04	21.05322	123.2704	180
22.06	21.62573	126.4873	182.6667
22.08	22.46616	130.5984	182.6667
22.1	23.70889	133.2598	185.3333
22.12	24.61314	136.8153	188
22.14	24.81233	142.2518	188.6667
22.16	24.44965	151.8047	189.3333
22.18	24.00187	160.3576	189.3333
22.2	23.42544	163.3522	188
22.22	22.43804	166.6909	185.3333
22.24	21.49698	171.5664	188
22.26	20.34707	175.0082	187.3333
22.28	19.21745	169.7807	185.3333
22.3	18.08784	160.2198	186
22.32	16.74643	149.106	182.6667
22.34	15.45529	143.9842	184
22.36	14.09261	136.0927	182.6667
22.38	12.43499	122.6536	177.3333
22.4	11.18444	114.082	180
22.42	9.948442	107.5211	178.6667
22.44	8.967763	102.5158	177.3333
22.46	8.308189	96.07133	175.3333
22.48	7.892317	88.95756	176.6667
22.5	7.612788	83.28289	177.3333
22.52	7.398067	78.27756	176.6667
22.54	7.195939	73.94422	177.3333
22.56	7.099217	70.27489	177.3333

22.58	7.131131	67.83044	176.6667
22.6	7.31296	67.27756	176.6667
22.62	7.664024	68.16644	176.6667
22.64	8.487201	67.53978	169.3333
22.66	9.293639	69.83844	178
22.68	10.12695	72.32644	163.3333
22.7	11.64822	69.32644	165.3333
22.72	12.5109	68.218	166
22.74	13.08537	71.44022	166.6667
22.76	13.46835	76.99578	166.6667
22.78	13.71303	82.77356	167.3333
22.8	13.85133	87.32911	167.3333
22.82	13.60665	92.66244	166
22.84	13.07376	97.99311	166
22.86	12.41418	101.3264	165.3333
22.88	11.72269	102.1042	163.3333
22.9	11.07376	101.882	163.3333
22.92	10.35035	100.1042	162.6667
22.94	9.722691	97.54867	162
22.96	9.202392	95.66244	161.3333
22.98	8.537068	90.45356	155.3333
23	8.298137	88.88467	160
23.02	8.031201	85.21533	159.3333
23.04	7.766222	79.77356	158.6667
23.06	7.71303	75.55133	158.6667
23.08	7.77686	72.66244	158.6667
23.1	7.883243	71.218	158
23.12	8.010903	69.32911	158.6667
23.14	8.00222	66.22333	156.6667
23.16	7.976054	68.21	159.3333
23.18	8.006991	69.874	160
23.2	7.921885	70.20733	160
23.22	7.805842	70.09889	160
23.24	7.731374	71.76556	158
23.26	7.88997	71.76289	161.3333
23.28	8.198481	70.42956	160
23.3	8.567888	69.866	161.3333
23.32	8.972143	69.53267	162
23.34	9.504058	67.64378	162.6667
23.36	10.12108	67.42156	163.3333
23.38	10.72844	69.97978	164
23.4	11.17525	74.42422	162.6667
23.42	11.43057	79.86867	164
23.44	11.64529	81.874	164
23.46	11.89095	87.54333	164
23.48	12.49635	93.42956	166
23.5	13.76329	96.21	166.6667
23.52	15.18882	98.76556	168

23.54	16.28457	106.4322	170
23.56	16.83776	112.9878	170
23.58	17.18882	117.8767	171.3333
23.6	17.32712	119.5433	171.3333
23.62	17.24201	122.3211	171.3333
23.64	17.02827	128.9851	172.6667
23.66	16.43909	133.8438	156.6667
23.68	17.20505	127.066	158.6667
23.7	17.73697	128.066	159.3333
23.72	17.96905	124.7273	159.3333
23.74	17.91488	123.1691	160
23.76	17.81914	122.8358	160
23.78	17.72242	122.2776	160
23.8	17.64697	123.9416	161.3333
23.82	17.49608	126.0473	161.3333
23.84	17.34617	127.0447	161.3333
23.86	16.89838	127.042	161.3333
23.88	16.35485	127.0393	160
23.9	15.78809	126.5869	162
23.92	15.43604	126.5842	162
23.94	15.51919	124.1344	162.6667
23.96	15.6652	121.5709	164
23.98	15.87601	119.6767	166
24	16.3518	116.5576	167.3333
24.02	17.30729	114.33	169.3333
24.04	18.6235	112.5442	170
24.06	19.53742	116.6527	172.6667
24.08	20.00355	121.8696	174
24.1	20.52189	124.8616	174.6667
24.12	20.91355	128.9673	175.3333
24.14	21.27428	134.7424	178
24.16	21.39998	141.7371	177.3333
24.18	21.25973	151.2873	178.6667
24.2	20.61666	154.8589	174
24.22	19.97359	159.8749	169.3333
24.24	19.90378	163.4962	177.3333
24.26	19.46772	164.8589	170.6667
24.28	19.60102	166.4829	180.6667
24.3	18.73955	159.3193	164
24.32	18.43874	154.8669	165.3333
24.34	18.1273	149.6367	164
24.36	17.753	146.4091	166
24.38	17.32356	145.1762	166
24.4	16.82258	144.8402	165.3333
24.42	16.44633	145.1629	165.3333
24.44	16.18906	144.3798	166
24.46	16.31378	143.594	166.6667
24.48	16.92983	141.7024	166

24.5	17.67059	136.914	167.3333
24.52	18.08451	133.4669	168
24.54	18.18894	134.2393	168
24.56	17.97324	133.0091	167.3333
24.58	17.42971	135.0064	167.3333
24.6	16.71596	138.5593	167.3333
24.62	15.82614	158.5407	180.6667
24.64	15.24409	142.2447	170.6667
24.66	13.99377	140.0651	159.3333
24.68	13.28101	136.7318	158.6667
24.7	12.81292	132.2873	156.6667
24.72	12.40867	127.2873	156.6667
24.74	12.04599	121.7291	155.3333
24.76	11.70263	120.4989	155.3333
24.78	11.51114	117.8322	155.3333
24.8	11.69101	113.0518	156
24.82	12.39216	112.3824	156.6667
24.84	13.22965	111.5967	158
24.86	13.63391	112.2633	159.3333
24.88	13.76059	111.1496	159.3333
24.9	13.8457	108.2607	159.3333
24.92	13.85536	107.5913	160
24.94	13.84472	106.9247	159.3333
24.96	13.90855	107.0358	158.6667
24.98	14.15323	106.258	159.3333
25	14.45012	103.0331	161.3333
25.02	14.62131	100.7024	159.3333
25.04	14.62034	98.922	160
25.06	14.56715	96.81089	160
25.08	14.52361	94.36378	160
25.1	14.37272	93.13622	161.3333
25.12	14.29825	95.58067	161.3333
25.14	14.51102	97.02511	161.3333
25.16	14.60481	97.57533	162
25.18	14.80694	99.01978	162.6667
25.2	15.17928	101.9087	162
25.22	15.59417	103.1309	164
25.24	15.68894	103.3504	163.3333
25.26	15.44426	105.7949	163.3333
25.28	15.25277	109.7949	164
25.3	15.1783	112.2393	164
25.32	15.09222	114.1256	164
25.34	15.08158	116.4589	165.3333
25.36	14.89009	119.6811	163.3333
25.38	14.84558	119.7869	163.3333
25.4	15.20728	119.5647	166
25.42	15.61154	118.5647	166
25.44	15.82332	121.3398	166

25.46	16.03609	121.0064	167.3333
25.48	16.35524	119.6731	166.6667
25.5	16.79043	119.5593	168
25.52	17.47128	120.8927	168
25.54	18.07669	121.7789	169.3333
25.56	18.19371	121.5567	170
25.58	17.10211	138.7371	162
25.6	18.04121	120.1896	162
25.62	18.11568	120.5229	162
25.64	17.94547	125.0784	161.3333
25.66	17.53058	127.9673	159.3333
25.68	17.15726	131.8536	160
25.7	16.87002	132.8536	159.3333
25.72	16.5296	135.1869	158.6667
25.74	16.20752	135.29	158.6667
25.76	15.92994	134.2873	158
25.78	15.75973	132.0651	158
25.8	15.75777	129.8376	159.3333
25.82	15.80803	127.6073	159.3333
25.84	15.79739	123.4962	159.3333
25.86	15.75386	118.1602	160
25.88	15.67646	113.0411	159.3333
25.9	15.68514	108.8136	160
25.92	15.81183	105.5887	161.3333
25.94	16.15127	102.4749	162
25.96	16.57485	100.6918	162.6667
25.98	17.03132	97.13356	163.3333
26	17.33885	94.79756	164
26.02	17.38043	96.46156	165.3333
26.04	17.26243	97.68111	165.3333
26.06	17.03902	100.0144	166
26.08	16.53902	105.1256	165.3333
26.1	16.13477	108.0144	163.3333
26.12	16.02643	111.1202	165.3333
26.14	16.07962	111.1202	166
26.16	16.17439	110.8953	166
26.18	16.41809	110.4482	166.6667
26.2	16.70533	109.8927	166.6667
26.22	17.19175	106.4402	167.3333
26.24	17.61729	103.8847	168
26.26	18.12695	102.5487	170
26.28	18.31746	103.546	170.6667
26.3	18.11533	104.4349	169.3333
26.32	17.97605	107.6544	170.6667
26.34	17.90061	108.5407	170.6667
26.36	17.94414	109.9878	170
26.38	17.99635	110.3184	170.6667
26.4	17.96248	110.4242	170

26.42	17.84546	109.4242	170
26.44	17.52534	107.9771	170.6667
26.46	16.99342	106.4216	169.3333
26.48	16.40734	105.6411	170
26.5	15.85317	106.9718	169.3333
26.52	15.28934	106.6384	169.3333
26.54	10.95783	110.5807	161.3333
26.56	14.03241	99.94333	158.6667
26.58	13.19199	93.94333	156
26.6	12.26939	89.72911	155.3333
26.62	11.73748	86.39578	154
26.64	11.45024	84.39578	154
26.66	11.32258	82.72911	152.6667
26.68	11.17267	81.05978	152
26.7	10.97054	79.39311	152
26.72	10.86416	79.282	151.3333
26.74	10.81965	80.49889	152
26.76	10.80901	81.83222	151.3333
26.78	10.57301	84.04911	151.3333
26.8	10.11654	86.82956	150.6667
26.82	9.487905	91.38244	150.6667
26.84	8.743224	100.0491	148.6667
26.86	8.08365	105.2713	148
26.88	7.274161	103.2687	148
26.9	7.038163	101.2633	148
26.92	7.292504	97.594	148.6667
26.94	7.983016	92.92467	149.3333
26.96	8.779911	89.58867	151.3333
26.98	9.385316	80.91933	150.6667
27	9.60872	77.03044	151.3333
27.02	9.439485	80.58867	150.6667
27.04	9.09906	83.03311	149.3333
27.06	8.621314	84.59133	148.6667
27.08	8.046846	83.59133	148.6667
27.1	7.20642	79.48022	148
27.12	6.441441	75.48289	146.6667
27.14	5.877611	69.92733	146.6667
27.16	5.814759	66.93	147.3333
27.18	6.155184	68.37444	147.3333
27.2	6.580716	68.93	148
27.22	6.59331	69.93533	148
27.24	6.200671	68.71578	148
27.26	5.69101	70.82956	146.6667
27.28	5.244202	72.38511	146.6667
27.3	4.670712	76.61	144.6667
27.32	4.511137	80.61	144.6667
27.34	3.864157	86.61533	145.3333
27.36	3.566284	94.50422	147.3333

27.38	3.26939	97.618	146.6667
27.4	3.354496	94.618	147.3333
27.42	3.482156	97.28467	147.3333
27.44	3.822581	93.50689	148.6667
27.46	4.045985	94.17356	148.6667
27.48	4.471517	85.84022	148.6667
27.5	5.003432	78.84022	150.6667
27.52	4.936043	76.13978	142
27.54	6.426383	70.36467	143.3333
27.56	7.351914	72.58689	146.6667
27.58	8.585957	76.03133	146.6667
27.6	9.56468	77.03133	148
27.62	10.37319	82.25356	149.3333
27.64	11.36158	85.25089	154.6667
27.66	12.30838	86.80644	155.3333
27.68	12.96796	87.80644	155.3333
27.7	13.28711	87.13978	156.6667
27.72	13.5637	87.25089	156.6667
27.74	13.9989	86.58156	160
27.76	14.3606	85.35933	161.3333
27.78	14.55111	84.35667	161.3333
27.8	14.65749	83.13444	162
27.82	14.75128	80.46244	162
27.84	14.76192	80.12911	162.6667
27.86	14.83541	81.79311	163.3333
27.88	14.8886	83.57089	162.6667
27.9	15.0472	84.12378	164
27.92	15.49303	84.01	165.3333
27.94	15.99303	84.12111	166.6667
27.96	16.59843	84.00733	168
27.98	17.10712	84.77978	169.3333
28	17.5752	85.44644	169.3333
28.02	17.98399	88.92733	186
28.04	18.51493	90.70244	188.6667
28.06	18.89693	92.81089	188.6667
28.08	19.2151	97.03044	189.3333
28.1	19.47911	100.2473	176.6667
28.12	19.66962	103.8002	177.3333
28.14	19.50527	107.7051	171.3333
28.16	19.60383	109.6838	178.6667
28.18	19.59222	113.0144	180.6667
28.2	19.68503	115.0064	181.3333
28.22	20.0235	116.2233	182.6667
28.24	20.78945	117.3344	182
28.26	21.68014	119.5487	184
28.28	22.59405	119.3238	184.6667
28.3	22.5921	117.6518	184.6667
28.32	20.88727	119.5913	170.6667

28.34	19.98204	121.3664	170
28.36	19.21608	126.1442	168
28.38	18.61936	127.2527	170
28.4	18.27698	127.914	169.3333
28.42	18.00906	127.0198	169.3333
28.44	18.06128	122.2393	171.3333
28.46	18.37749	117.7869	172.6667
28.48	19.09992	112.2287	172.6667
28.5	18.30486	132.2073	182.6667
28.52	20.05823	107.8687	184
28.54	20.43252	103.874	184
28.56	20.69848	100.6518	184.6667
28.58	20.87652	100.0064	180
28.6	20.77502	100.5753	176.6667
28.62	20.72281	105.4669	175.3333
28.64	21.03034	108.1309	176.6667
28.66	21.11545	111.0198	175.3333
28.68	21.00906	112.1309	174.6667
28.7	20.85915	113.3504	175.3333
28.72	20.61447	114.1282	174
28.74	20.25179	114.9033	174
28.76	19.82724	115.3504	173.3333
28.78	19.89009	116.2367	173.3333
28.8	20.3243	115.5647	175.3333
28.82	20.99256	113.7816	177.3333
28.84	21.93839	112.3344	180
28.86	22.29998	111.5273	185.3333
28.88	22.26794	110.9424	192.6667
28.9	20.48865	108.6598	177.3333
28.92	19.82907	107.5487	176.6667
28.94	19.25363	107.8793	175.3333
28.96	18.83776	109.7656	174.6667
28.98	18.6772	108.7629	175.3333
29	18.76036	106.8687	178
29.02	18.86576	104.7549	178
29.04	19.05627	102.6411	178.6667
29.06	19.3193	102.7442	180.6667
29.08	19.88215	102.7416	181.3333
29.1	20.70032	103.5167	181.3333
29.12	21.64615	105.0696	182.6667
29.14	23.00687	106.0669	184.6667
29.16	23.80256	108.6696	199.3333
29.18	24.99209	109.9976	202
29.2	26.88277	111.9896	204.6667
29.22	28.3818	122.098	206.6667
29.24	29.33643	138.0082	203.3333
29.26	30.35868	149.6776	203.3333
29.28	30.88473	159.4393	206.6667

29.3	31.25218	168.3149	210
29.32	31.47461	177.7567	210
29.34	31.27835	186.6616	206.6667
29.36	31.1255	194.5398	207.3333
29.38	31.06742	198.7487	210
29.4	30.59163	200.5344	208
29.42	29.83729	202.9816	204.6667
29.44	29.20865	204.2011	204.6667
29.46	28.6738	205.7487	204.6667
29.48	18.71158	156.2091	192
29.5	28.13712	209.9869	203.3333
29.52	28.20192	208.9896	202.6667
29.54	28.37214	213.7673	202
29.56	28.73384	220.434	202
29.58	29.31797	226.6536	203.3333
29.6	30.21061	230.3176	204.6667
29.62	30.85856	230.6482	206.6667
29.64	31.34499	241.7513	206.6667
29.66	31.66316	253.8598	207.3333
29.68	32.22308	260.5158	210
29.7	32.96581	264.3993	210.6667
29.72	33.49577	263.2829	212
29.74	33.52377	265.05	211.3333
29.76	33.16977	264.8198	212
29.78	32.62429	255.3673	210.6667
29.8	32.20646	245.4704	211.3333
29.82	31.80991	234.1291	211.3333
29.84	30.92302	224.3407	212
29.86	29.64447	219.5576	210.6667
29.88	28.35332	210.1024	210
29.9	27.0409	204.2029	209.3333
29.92	26.34746	197.8642	210
29.94	26.13176	192.9673	210.6667
29.96	26.27776	187.7371	212
29.98	26.27483	177.618	212
30	25.89955	169.61	213.3333
30.02	25.38598	163.4909	211.3333
30.04	24.74573	156.1522	213.3333
30.06	24.38109	153.922	212
30.08	24.14607	158.1416	212
30.1	23.71956	162.4722	212
30.12	23.19535	168.1309	211.3333
30.14	22.79012	169.3504	211.3333
30.16	22.46033	166.7949	211.3333
30.18	22.18178	165.6784	210.6667
30.2	21.66148	165.2367	210
30.22	21.12761	164.0091	210
30.24	20.42353	160.3371	208

30.26	20.06183	154.5593	210
30.28	19.79489	150.0011	208
30.3	19.75136	147.7762	210
30.32	20.00668	145.2207	210
30.34	20.54923	140.4429	210.6667
30.36	21.34711	135.554	210.6667
30.38	21.79391	133.8873	210.6667
30.4	21.77264	132.7762	210
30.42	21.16625	131.554	209.3333
30.44	20.23106	135.2233	207.3333
30.46	19.0183	137.6678	206
30.48	17.36819	140.6553	164
30.5	16.33627	131.322	163.3333
30.52	14.7618	127.8776	162
30.54	13.45329	125.0998	160
30.56	12.60125	118.4304	160
30.58	12.06836	107.4278	159.3333
30.6	11.78015	95.75844	158.6667
30.62	11.58768	86.86689	158.6667
30.64	11.45806	79.08378	158.6667
30.66	11.34104	71.306	159.3333
30.68	11.2859	65.74511	160
30.7	11.30717	61.52289	160
30.72	11.26462	59.07844	161.3333
30.74	11.33811	57.74244	162
30.76	11.62339	56.51489	162
30.78	12.15432	55.73444	162.6667
30.8	12.64369	56.51222	166.6667
30.82	12.94058	57.17622	168
30.84	13.02569	58.39844	168
30.86	13.02569	59.73178	170
30.88	13.0779	62.06244	170
30.9	13.10982	65.95133	170.6667
30.92	13.10884	70.50422	171.3333
30.94	13.10884	74.282	172.6667
30.96	13.04305	80.61	172.6667
30.98	12.91539	87.72111	172.6667
31	12.70263	94.38778	173.3333
31.02	12.46761	98.94067	172.6667
31.04	12.21229	103.1629	174
31.06	12.08365	104.938	172.6667
31.08	12.0614	105.602	174
31.1	12.15518	104.8189	174.6667
31.12	12.28284	103.7078	175.3333
31.14	12.33506	100.4829	175.3333
31.16	12.25961	98.14689	175.3333
31.18	12.07778	96.58867	175.3333
31.2	11.80021	96.36378	175.3333

31.22	11.47911	96.914	175.3333
31.24	11.03132	97.13356	176.6667
31.26	10.5197	97.79756	176.6667
31.28	10.05162	98.35311	175.3333
31.3	9.741151	96.57	174.6667
31.32	9.494515	94.45356	174.6667
31.34	9.303026	90.45356	176.6667
31.36	9.206303	87.67311	176.6667
31.38	9.152134	84.55933	174.6667
31.4	9.119241	81.66778	176.6667
31.42	9.140518	79.77889	176.6667
31.44	9.21303	78.218	177.3333
31.46	9.498543	75.71578	171.3333
31.48	9.967606	74.49622	172.6667
31.5	10.5208	75.16289	173.3333
31.52	11.22293	76.05178	174
31.54	12.09527	77.60733	174.6667
31.56	13.11654	80.49622	176.6667
31.58	13.70067	84.16022	177.3333
31.6	13.7442	87.05178	177.3333
31.62	13.60493	92.38244	176.6667
31.64	13.63684	98.82689	178
31.66	13.69969	103.3798	177.3333
31.68	13.7848	109.3798	177.3333
31.7	13.83799	115.4909	178
31.72	13.87859	118.7078	178
31.74	14.07008	120.8189	178
31.76	14.3457	123.2607	180.6667
31.78	14.92983	125.9247	182.6667
31.8	15.89693	128.8109	185.3333
31.82	17.25766	131.0304	188.6667
31.84	18.95783	133.6918	192
31.86	21.15898	138.0224	194.6667
31.88	23.04098	142.0198	196.6667
31.9	23.76341	145.5727	198.6667
31.92	23.20924	159.4589	196
31.94	22.31269	178.2287	196
31.96	21.62022	198.6704	196
31.98	21.76818	213.0011	196.6667
32	22.98963	223.8847	200
32.02	24.83971	235.2153	204
32.04	26.46542	243.0989	206.6667
32.06	27.24972	242.5353	207.3333
32.08	27.16266	241.9744	206
32.1	26.3396	248.7416	204.6667
32.12	25.00785	261.7362	204.6667
32.14	23.99428	276.6171	203.3333
32.16	23.68381	288.9451	204.6667

32.18	24.21182	290.1567	207.3333
32.2	25.46225	282.3656	209.3333
32.22	26.40612	273.9131	210.6667
32.24	26.84902	266.458	211.3333
32.26	26.68554	261.2251	210.6667
32.28	26.37214	260.3229	211.3333
32.3	26.11388	264.426	210.6667
32.32	26.06742	270.082	212
32.34	25.91653	277.2989	211.3333
32.36	24.92728	276.6616	200.6667
32.38	24.32665	277.2038	202.6667
32.4	23.56742	269.7487	202
32.42	14.07904	145.5291	192.6667
32.44	22.37886	264.8678	204.6667
32.46	21.47559	257.2038	202
32.48	20.3692	253.6482	198.6667
32.5	19.15644	246.7593	198.6667
32.52	17.98525	238.2011	196
32.54	16.7918	228.3069	194.6667
32.56	15.60997	215.4153	193.3333
32.58	14.48036	204.7433	192.6667
32.6	13.51227	193.9656	190
32.62	12.76466	179.2909	189.3333
32.64	12.1776	165.5078	189.3333
32.66	11.79168	153.4998	189.3333
32.68	11.75879	142.7193	190
32.7	12.25781	131.7167	191.3333
32.72	13.43769	119.1584	192.6667
32.74	15.24424	110.1531	194.6667
32.76	16.68041	107.1531	196.6667
32.78	17.58369	106.5949	196.6667
32.8	18.19007	110.706	197.3333
32.82	18.72297	117.4864	198.6667
32.84	18.96765	128.3753	198.6667
32.86	18.71428	141.0473	199.3333
32.88	18.42803	154.3833	196.6667
32.9	17.72981	164.5051	193.3333
32.92	16.96483	172.1744	193.3333
32.94	16.26943	176.7193	196
32.96	15.47156	176.6082	194.6667
32.98	14.66402	173.722	193.3333
33	14.05666	166.7193	194.6667
33.02	13.50347	160.0527	193.3333
33.04	12.95028	152.8304	192.6667
33.06	12.50347	144.8304	192
33.08	12.23751	136.4971	192
33.1	12.03441	128.05	191.3333
33.12	11.71526	118.7167	190

33.14	11.26845	111.1611	190
33.16	11.01313	106.6056	188.6667
33.18	11.07794	104.1638	190
33.2	11.45126	102.3887	189.3333
33.22	11.88645	100.9416	191.3333
33.24	12.52475	101.0527	192.6667
33.26	13.429	102.6082	192.6667
33.28	14.7056	104.2749	193.3333
33.3	15.49381	111.0553	196
33.32	15.49381	117.1664	195.3333
33.34	15.32555	121.8384	195.3333
33.36	15.18823	128.8411	194.6667
33.38	15.00738	134.0633	193.3333
33.4	14.67857	139.3993	193.3333
33.42	14.17329	141.6411	182.6667
33.44	14.00406	140.1993	184.6667
33.46	13.85512	136.7549	184.6667
33.48	13.89865	134.9798	184.6667
33.5	14.08917	131.7549	185.3333
33.52	14.47214	126.866	185.3333
33.54	14.96053	119.53	187.3333
33.56	15.53402	109.0829	188.6667
33.58	15.89376	99.18867	188.6667
33.6	15.9247	86.29711	188.6667
33.62	15.64713	81.18333	188.6667
33.64	15.54075	75.51667	187.3333
33.66	15.65679	72.62511	188.6667
33.68	15.81636	72.514	189.3333
33.7	16.30475	72.84467	191.3333
33.72	17.16743	72.514	192.6667
33.74	18.15581	79.06689	194.6667
33.76	19.33666	89.62244	196.6667
33.78	21.04943	83.95578	200.6667
33.8	22.70705	100.7282	204.6667
33.82	24.5262	106.1727	207.3333
33.84	25.91981	106.1727	210
33.86	27.53586	112.9478	210.6667
33.88	29.12096	118.3922	213.3333
33.9	30.30181	121.7256	204
33.92	30.88594	126.9451	206
33.94	31.05616	134.2784	206
33.96	31.3956	150.498	206.6667
33.98	31.75535	161.3816	210
34	31.98841	170.49	210.6667
34.02	32.16927	180.49	211.3333
34.04	32.28433	183.9291	213.3333
34.06	32.29204	185.6989	214
34.08	31.64114	178.3602	214

34.1	30.12757	174.0189	212
34.12	28.09272	168.5664	210
34.14	25.5366	164.2251	206
34.16	22.20388	157.8838	202.6667
34.18	19.05201	152.9869	200
34.2	15.95431	145.8704	196
34.22	13.3121	138.1931	192.6667
34.24	10.85074	135.0713	191.3333
34.26	9.018021	126.9522	189.3333
34.28	7.216238	116.4971	188
34.3	6.193006	115.9362	187.3333
34.32	6.423137	134.8144	189.3333
34.34	7.548841	140.5869	193.3333
34.36	9.003355	142.0233	198.6667
34.38	7.679277	70.242	351.3333
34.4	12.33885	118.5753	353.3333
34.42	14.39302	117.8002	356.6667
34.44	15.87174	140.0224	359.3333
34.46	17.06323	157.9113	361.3333
34.48	18.14834	168.9113	364
34.5	19.27502	175.6864	365.3333
34.52	20.35915	179.2393	368
34.54	21.35817	172.9033	370
34.56	22.13281	163.898	372.6667
34.58	22.80205	153.8953	375.3333
34.6	23.42775	153.5567	377.3333
34.62	23.75558	160.1069	378.6667
34.64	23.55248	170.2153	379.3333
34.66	22.94414	182.0989	380
34.68	22.21976	190.2073	379.3333
34.7	21.67427	198.0882	380
34.72	21.55627	203.7522	380.6667
34.74	21.7013	208.0749	383.3333
34.76	22.13649	209.9611	384
34.78	22.75156	210.7336	386.6667
34.8	23.47105	206.0562	388.6667
34.82	24.04258	203.0482	391.3333
34.84	24.50774	201.7069	392.6667
34.86	24.84523	204.2544	394
34.88	24.81136	207.9158	395.3333
34.9	24.54149	214.3496	397.3333
34.92	24.53953	221.0109	397.3333
34.94	25.02498	225.8891	399.3333
34.96	25.81026	232.3282	401.3333
34.98	26.42435	234.2091	402.6667
35	26.80537	238.7593	404.6667
35.02	27.18444	237.082	406.6667
35.04	27.38461	235.5211	407.3333

35.06	27.38168	231.402	408.6667
35.08	27.43194	233.7273	410
35.1	27.51411	242.7193	410.6667
35.12	27.65914	245.2642	412.6667
35.14	27.76356	247.8144	413.3333
35.16	27.69582	244.8038	414.6667
35.18	27.56621	245.354	414.6667
35.2	27.542	250.2349	416
35.22	27.51779	256.338	416
35.24	27.64154	254.3273	417.3333
35.26	27.52256	251.0998	418
35.28	27.20048	248.4251	418
35.3	26.84648	249.1949	418
35.32	26.25844	251.0758	418
35.34	25.60755	252.7371	418

REPORT INDAGINI GEOFISICHE

Report:	15.038
Cantiere:	Ferrara Canale Boicelli



Dott. Geol Rocco Carbonella
Geologia & Geotecnica
Bologna via Toscana 119
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Report indagini geofisiche

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SOMMARIO

1.	PREMESSE	3
2.	DATI SPERIMENTALI TECNICA MASW, REMI, RISULTATI OTTENUTI	4
3.	DATI SPERIMENTALI MISURA HVSR E RISULTATI	5
4.	MODELLO DI SOTTOSUOLO	6
5.	CONCLUSIONI	6



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1. PREMESSE

Nell'area ubicata nel Comune di Ferrarain corrispondenza dell'intersezione del Canale Boicelli con il Canal Bianco, sono state eseguite le seguenti prove geofisiche:

- N° 1 Array lineare con acquisizione attiva e passiva
- N° 2 letture a stazione singola HVSR



Figura 1 – Documentazione fotografica



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2. DATI SPERIMENTALI TECNICA MASW, REMI E RISULTATI OTTENUTI

Strumentazione utilizzata: Sismografo digitale modello Soil Spy Rosina (Micromed)

Configurazione array lineare:

Numero di geofoni verticali (frq. Propria 4.5 Hz)..... 24

Spaziatura tra i geofoni:..... 3.00 m (MASW REMI)

Lunghezza traccia acquisita..... 1 sec (MASW)

Lunghezza traccia acquisita..... 2 min (passiva)

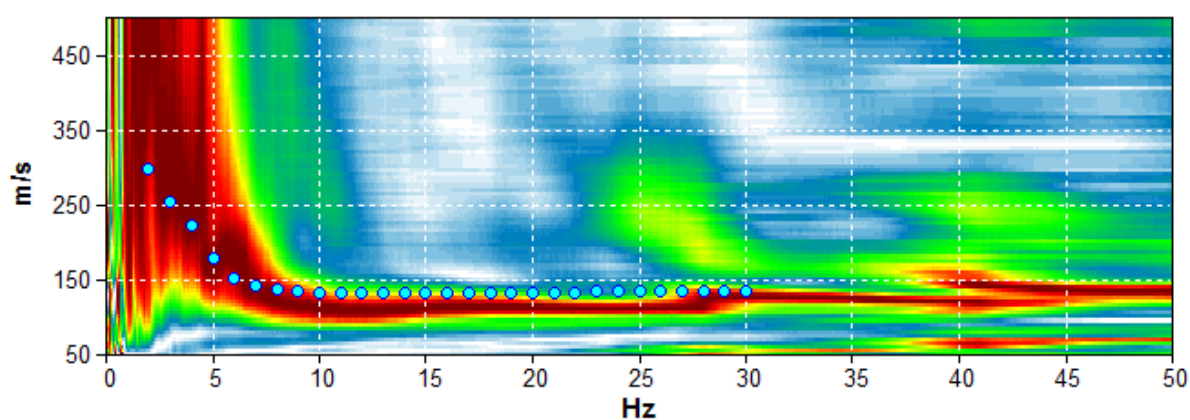


Figura 2 - Spettro di velocità di fase dell'onda di Rayleigh per il profilo sismico eseguito in array



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3. DATI SPERIMENTALI MISURE HVSR E RISULTATI

Strumento:	TROMINO MODELLO 3G
Durata registrazione:	0h20'00".
Freq. campionamento:	512 Hz
Lunghezza finestre:	20 s
Tipo di lisciamento:	Triangular window
Lisciamento:	10%

RAPPORTO SPETTRALE ORIZZONTALE SU VERTICALE HVSR

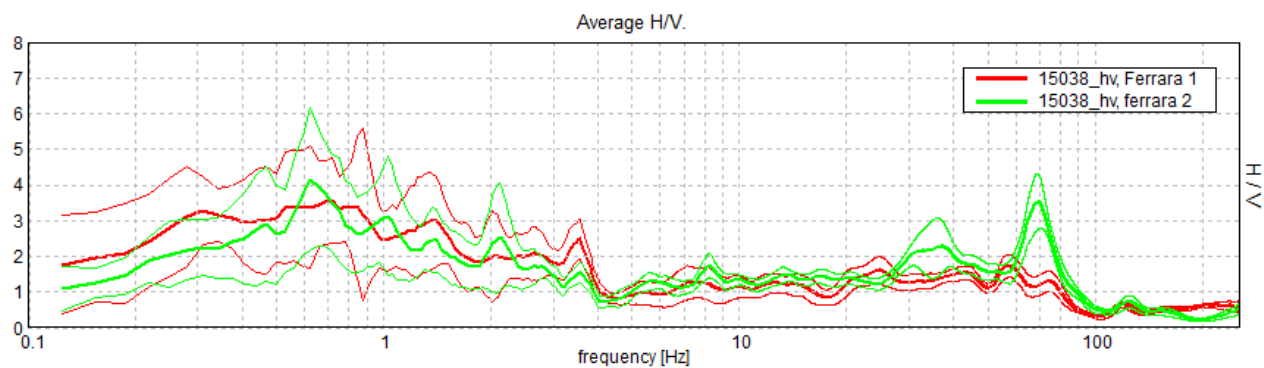


Figura 3– Curva H/V (HVSR) registrata nel sito in esame



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4. MODELLO DI SOTTOSUOLO

Depth at the bottom of the layer [m]	Thickness [m]	Vs [m/s]	Poisson ratio
1.50	1.50	160	0.42
11.50	10.00	135	0.42
21.50	10.00	240	0.49
31.50	10.00	270	0.49
61.50	30.00	300	0.49
91.50	30.00	330	0.49
inf.	inf.	480	0.49

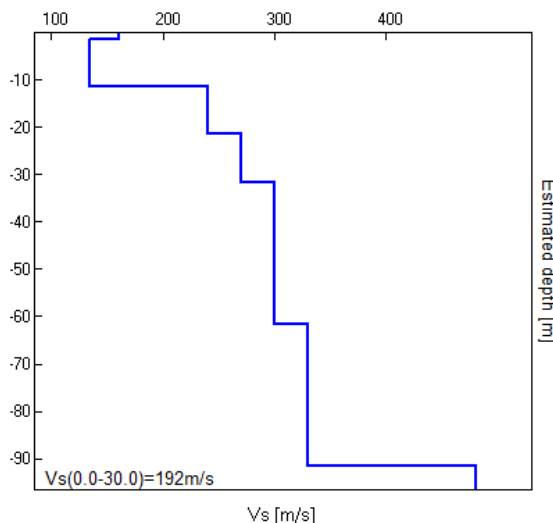


Figura 4 – modello di velocità delle onde di taglio S derivato da fit congiunto con acquisizione attiva, passiva e tecnica H/V.

5. CONCLUSIONI

L'analisi congiunta delle tecniche di acquisizione utilizzate, ha permesso sia di ricostruire il profilo verticale di velocità delle onde S nel sito in esame, sia di individuare la presenza di contrasti di impedenza-rigidezza nel sottosuolo medesimo.

Il profilo sismico (MASW, REMI) e la relativa elaborazione ha permesso di ricostruire il modello delle velocità delle onde di taglio fino ad una profondità di circa 18-20 m dal piano campagna. L'estensione in profondità è stata eseguita utilizzando l'analisi congiunta con le acquisizioni HVSR, oltre ai dati disponibili delle prove penetrometriche eseguite.

La Vs30 [m/s] dalla quota del piano campagna su cui è stato eseguito il profilo è risultata pari a 192 m/s. L'incertezza sul valore calcolato di Vs30 è dell'ordine del 20% (cfr. Mulargia e Castellaro, 2009, Seism. Res. Lett., 80, 985-989).