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Fourth Generation Model

- The infinite mass scenario ($M_{D4}=M_{L4}=10\text{TeV}$ and $M_{U4} - M_{D4} = [1 + 1/5*\ln(M_H/115)] * 50 \text{ GeV}$).
- Assumes the same NNLO QCD corrections as SM for ggF.
- QCD scale and PDF+ α_s uncertainties are assumed to be the same as SM for ggF.
- Electroweak radiative corrections in the fourth generation model in Higgs production and decay are unknown (work in progress). Therefore suggests to assign +15% theory uncertainty for $\sigma \times \text{BR}$.
- Assuming negligible SM4 contributions to other Higgs production processes (other than ggF) and SM backgrounds, one can estimate the Higgs production rate via

$$(\sigma \times \text{BR})_{\text{SM4}} = \left\{ \sigma_{\text{ggF}}^{\text{SM, NNLO}} \cdot \left(\frac{\sigma_{\text{SM4}}}{\sigma_{\text{SM}}} \right)_{\text{HIGLU}}^{\text{NLO}} + \sigma_{\text{VBF}}^{\text{SM, NNLO}} + \sigma_{\text{VH}}^{\text{SM, NNLO}} + \sigma_{\text{ttH}}^{\text{SM, NLO}} \right\} \times \text{BR}(H \rightarrow \gamma\gamma, \text{WW}, \text{ZZ})_{\text{HDECAY}}^{\text{SM4}} \cdot \text{BR}(VV \rightarrow 4f)_{\text{PDG}}$$

ggF Higgs cross sections

The entries are:

- Higgs mass (in GeV)
- The cross section ratio $R = (\text{SM4}) / (\text{SM})$ calculated by HIGLU.
- SM4 ggF cross section obtained by $R * \sigma_{\text{SM}}^{\text{NNLO}}$.
- SM NLO EW radiative corrections are switched off in σ_{SM} .

		SM4
		ggF
MH	(SM4)/ (SM)	cross section
[GeV]	(HIGLU)	[pb]
100.0	9.248	213.22
105.0	9.224	192.51
110.0	9.180	174.21
110.5	9.183	172.57
111.0	9.174	170.88
111.5	9.178	169.34
112.0	9.171	167.69
112.5	9.171	166.08
113.0	9.160	164.45
113.5	9.157	162.88
114.0	9.154	161.31
114.5	9.149	159.79
115.0	9.146	158.31
115.5	9.142	156.81
116.0	9.138	155.41
116.5	9.134	153.92
117.0	9.127	152.46
117.5	9.127	151.13
118.0	9.120	149.68
118.5	9.124	148.41
119.0	9.111	146.95
119.5	9.116	145.79
120.0	9.103	144.25
120.5	9.102	143.00

121.0	9.100	141.81
121.5	9.096	140.51
122.0	9.091	139.19
122.5	9.085	137.86
123.0	9.080	136.72
123.5	9.082	135.61
124.0	9.074	134.34
124.5	9.074	133.19
125.0	9.066	132.01
125.5	9.057	130.74
126.0	9.059	129.71
126.5	9.048	128.49
127.0	9.046	127.41
127.5	9.040	126.27
128.0	9.037	125.18
128.5	9.035	124.09
129.0	9.032	123.09
129.5	9.028	121.98
130.0	9.022	120.93
130.5	9.012	119.84
131.0	9.012	118.87
131.5	9.008	117.95
132.0	9.007	116.97
132.5	9.001	115.93
133.0	8.997	115.01
133.5	8.986	113.91
134.0	8.985	113.11
134.5	8.982	112.20
135.0	8.978	111.28
135.5	8.968	110.29
136.0	8.970	109.44
136.5	8.965	108.51
137.0	8.956	107.54
137.5	8.949	106.76
138.0	8.949	105.89
138.5	8.937	104.88
139.0	8.930	104.02
139.5	8.935	103.30
140.0	8.933	102.50
141.0	8.916	100.76
142.0	8.913	99.26
143.0	8.897	97.54
144.0	8.895	96.14
145.0	8.881	94.54
146.0	8.876	93.20
147.0	8.860	91.67
148.0	8.850	90.21
149.0	8.841	88.86
150.0	8.829	87.47
151.0	8.819	86.20

152.0	8.811	84.88
153.0	8.801	83.63
154.0	8.791	82.42
155.0	8.778	81.19
156.0	8.771	80.02
157.0	8.757	78.82
158.0	8.756	77.74
159.0	8.736	76.59
160.0	8.726	75.56
162.0	8.712	73.31
164.0	8.684	71.01
166.0	8.671	69.01
168.0	8.645	67.11
170.0	8.628	65.34
172.0	8.601	63.52
174.0	8.579	61.80
176.0	8.556	60.12
178.0	8.534	58.54
180.0	8.511	57.05
182.0	8.490	55.59
184.0	8.467	54.16
186.0	8.443	52.79
188.0	8.418	51.44
190.0	8.397	50.15
192.0	8.371	48.88
194.0	8.355	47.73
196.0	8.322	46.52
198.0	8.306	45.45
200.0	8.275	44.36
202.0	8.253	43.32
204.0	8.228	42.31
206.0	8.205	41.35
208.0	8.179	40.39
210.0	8.151	39.44
212.0	8.126	38.56
214.0	8.106	37.72
216.0	8.076	36.88
218.0	8.053	36.08
220.0	8.024	35.29
222.0	7.994	34.50
224.0	7.972	33.76
226.0	7.939	33.01
228.0	7.914	32.31
230.0	7.884	31.60
232.0	7.857	30.94
234.0	7.832	30.29
236.0	7.808	29.68
238.0	7.777	29.05
240.0	7.747	28.44
242.0	7.713	27.85

244.0	7.688	27.32
246.0	7.657	26.79
248.0	7.629	26.28
250.0	7.597	25.77
252.0	7.567	25.27
254.0	7.532	24.77
256.0	7.505	24.31
258.0	7.474	23.85
260.0	7.440	23.39
262.0	7.408	22.95
264.0	7.377	22.52
266.0	7.342	22.11
268.0	7.307	21.69
270.0	7.269	21.28
272.0	7.240	20.92
274.0	7.200	20.55
276.0	7.163	20.19
278.0	7.136	19.88
280.0	7.101	19.55
282.0	7.066	19.21
284.0	7.022	18.87
286.0	6.987	18.56
288.0	6.952	18.25
290.0	6.913	17.95
295.0	6.811	17.22
300.0	6.714	16.57
305.0	6.602	15.93
310.0	6.497	15.36
315.0	6.378	14.81
320.0	6.261	14.33
325.0	6.126	13.86
330.0	5.988	13.45
335.0	5.835	13.07
340.0	5.662	12.73
345.0	5.441	12.47
350.0	5.197	12.49
360.0	4.884	12.00
370.0	4.690	11.39
380.0	4.551	10.66
390.0	4.457	9.90
400.0	4.385	9.15
420.0	4.300	7.70
440.0	4.253	6.40
460.0	4.239	5.30
480.0	4.241	4.38
500.0	4.264	3.63
520.0	4.292	3.00
540.0	4.336	2.49
560.0	4.386	2.07
580.0	4.446	1.73

600.0	4.514	1.45
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Higgs Branching Ratios

The entries are:

- Higgs mass (in GeV)
- The branching fractions are calculated with HDECAY 4.00.
- SM NLO EW radiative corrections are switched off in BR.

MH [GeV]	H bb	H	H $\mu\mu$	H ss	H cc	H tt	H gg	H	H Z	H WW	H ZZ
100.0	4.98E-01	5.23E-02	1.82E-04	2.13E-04	2.47E-02	0.00E+00	4.17E-01	1.85E-04	2.39E-05	6.76E-03	6.98E-
105.0	4.75E-01	5.03E-02	1.75E-04	2.03E-04	2.35E-02	0.00E+00	4.35E-01	2.09E-04	8.14E-05	1.44E-02	1.29E-
110.0	4.49E-01	4.80E-02	1.67E-04	1.92E-04	2.22E-02	0.00E+00	4.50E-01	2.35E-04	1.83E-04	2.80E-02	2.59E-
110.5	4.46E-01	4.77E-02	1.66E-04	1.91E-04	2.21E-02	0.00E+00	4.51E-01	2.38E-04	1.96E-04	2.98E-02	2.77E-
111.0	4.43E-01	4.75E-02	1.65E-04	1.89E-04	2.19E-02	0.00E+00	4.52E-01	2.41E-04	2.09E-04	3.17E-02	2.97E-
111.5	4.40E-01	4.72E-02	1.64E-04	1.88E-04	2.18E-02	0.00E+00	4.53E-01	2.43E-04	2.22E-04	3.36E-02	3.18E-
112.0	4.38E-01	4.69E-02	1.63E-04	1.87E-04	2.17E-02	0.00E+00	4.54E-01	2.46E-04	2.37E-04	3.56E-02	3.41E-
112.5	4.35E-01	4.67E-02	1.62E-04	1.86E-04	2.15E-02	0.00E+00	4.55E-01	2.49E-04	2.51E-04	3.78E-02	3.65E-
113.0	4.32E-01	4.64E-02	1.61E-04	1.84E-04	2.14E-02	0.00E+00	4.56E-01	2.51E-04	2.66E-04	4.00E-02	3.91E-
113.5	4.29E-01	4.61E-02	1.60E-04	1.83E-04	2.12E-02	0.00E+00	4.57E-01	2.54E-04	2.81E-04	4.23E-02	4.18E-
114.0	4.26E-01	4.58E-02	1.59E-04	1.82E-04	2.11E-02	0.00E+00	4.57E-01	2.57E-04	2.97E-04	4.47E-02	4.47E-
114.5	4.23E-01	4.56E-02	1.58E-04	1.81E-04	2.09E-02	0.00E+00	4.58E-01	2.60E-04	3.14E-04	4.72E-02	4.77E-
115.0	4.20E-01	4.53E-02	1.57E-04	1.79E-04	2.08E-02	0.00E+00	4.58E-01	2.63E-04	3.30E-04	4.99E-02	5.09E-
115.5	4.17E-01	4.50E-02	1.56E-04	1.78E-04	2.06E-02	0.00E+00	4.59E-01	2.65E-04	3.47E-04	5.26E-02	5.43E-
116.0	4.14E-01	4.47E-02	1.55E-04	1.77E-04	2.05E-02	0.00E+00	4.59E-01	2.68E-04	3.65E-04	5.54E-02	5.79E-
116.5	4.11E-01	4.44E-02	1.54E-04	1.75E-04	2.03E-02	0.00E+00	4.59E-01	2.71E-04	3.83E-04	5.83E-02	6.16E-
117.0	4.07E-01	4.41E-02	1.53E-04	1.74E-04	2.02E-02	0.00E+00	4.60E-01	2.74E-04	4.01E-04	6.14E-02	6.56E-
117.5	4.04E-01	4.38E-02	1.52E-04	1.73E-04	2.00E-02	0.00E+00	4.60E-01	2.76E-04	4.20E-04	6.46E-02	6.97E-
118.0	4.01E-01	4.34E-02	1.51E-04	1.71E-04	1.98E-02	0.00E+00	4.60E-01	2.79E-04	4.39E-04	6.78E-02	7.41E-
118.5	3.98E-01	4.31E-02	1.50E-04	1.70E-04	1.97E-02	0.00E+00	4.60E-01	2.82E-04	4.59E-04	7.12E-02	7.86E-
119.0	3.94E-01	4.28E-02	1.49E-04	1.68E-04	1.95E-02	0.00E+00	4.59E-01	2.85E-04	4.78E-04	7.47E-02	8.34E-
119.5	3.91E-01	4.25E-02	1.47E-04	1.67E-04	1.93E-02	0.00E+00	4.59E-01	2.87E-04	4.99E-04	7.84E-02	8.83E-
120.0	3.87E-01	4.21E-02	1.46E-04	1.65E-04	1.92E-02	0.00E+00	4.59E-01	2.90E-04	5.19E-04	8.21E-02	9.35E-
120.5	3.84E-01	4.18E-02	1.45E-04	1.64E-04	1.90E-02	0.00E+00	4.58E-01	2.93E-04	5.40E-04	8.60E-02	9.90E-
121.0	3.81E-01	4.14E-02	1.44E-04	1.62E-04	1.88E-02	0.00E+00	4.58E-01	2.95E-04	5.61E-04	9.00E-02	1.05E-
121.5	3.77E-01	4.11E-02	1.43E-04	1.61E-04	1.86E-02	0.00E+00	4.57E-01	2.98E-04	5.83E-04	9.41E-02	1.11E-
122.0	3.73E-01	4.07E-02	1.41E-04	1.59E-04	1.85E-02	0.00E+00	4.56E-01	3.01E-04	6.04E-04	9.83E-02	1.17E-
122.5	3.70E-01	4.03E-02	1.40E-04	1.58E-04	1.83E-02	0.00E+00	4.55E-01	3.03E-04	6.26E-04	1.03E-01	1.23E-
123.0	3.66E-01	4.00E-02	1.39E-04	1.56E-04	1.81E-02	0.00E+00	4.54E-01	3.06E-04	6.48E-04	1.07E-01	1.30E-
123.5	3.62E-01	3.96E-02	1.37E-04	1.55E-04	1.79E-02	0.00E+00	4.53E-01	3.08E-04	6.71E-04	1.12E-01	1.36E-
124.0	3.59E-01	3.92E-02	1.36E-04	1.53E-04	1.77E-02	0.00E+00	4.52E-01	3.11E-04	6.93E-04	1.17E-01	1.43E-
124.5	3.55E-01	3.88E-02	1.35E-04	1.52E-04	1.75E-02	0.00E+00	4.51E-01	3.14E-04	7.16E-04	1.22E-01	1.51E-
125.0	3.51E-01	3.85E-02	1.33E-04	1.50E-04	1.74E-02	0.00E+00	4.50E-01	3.16E-04	7.39E-04	1.27E-01	1.58E-
125.5	3.47E-01	3.81E-02	1.32E-04	1.48E-04	1.72E-02	0.00E+00	4.48E-01	3.19E-04	7.62E-04	1.32E-01	1.66E-
126.0	3.43E-01	3.77E-02	1.31E-04	1.47E-04	1.70E-02	0.00E+00	4.46E-01	3.21E-04	7.86E-04	1.37E-01	1.74E-
126.5	3.39E-01	3.73E-02	1.29E-04	1.45E-04	1.68E-02	0.00E+00	4.45E-01	3.23E-04	8.09E-04	1.43E-01	1.82E-
127.0	3.35E-01	3.68E-02	1.28E-04	1.43E-04	1.66E-02	0.00E+00	4.43E-01	3.26E-04	8.33E-04	1.48E-01	1.91E-
127.5	3.31E-01	3.64E-02	1.26E-04	1.41E-04	1.64E-02	0.00E+00	4.41E-01	3.28E-04	8.56E-04	1.54E-01	1.99E-

LHCHXSWGSM4A7TeVInfinite < LHCPHysics < TWiki

128.0	3.27E-01	3.60E-02	1.25E-04	1.40E-04	1.62E-02	0.00E+00	4.39E-01	3.30E-04	8.80E-04	1.60E-01	2.08E-
128.5	3.23E-01	3.56E-02	1.24E-04	1.38E-04	1.60E-02	0.00E+00	4.36E-01	3.33E-04	9.03E-04	1.66E-01	2.17E-
129.0	3.19E-01	3.52E-02	1.22E-04	1.36E-04	1.58E-02	0.00E+00	4.34E-01	3.35E-04	9.27E-04	1.72E-01	2.27E-
129.5	3.15E-01	3.47E-02	1.21E-04	1.34E-04	1.56E-02	0.00E+00	4.32E-01	3.37E-04	9.51E-04	1.78E-01	2.36E-
130.0	3.11E-01	3.43E-02	1.19E-04	1.33E-04	1.54E-02	0.00E+00	4.29E-01	3.39E-04	9.74E-04	1.84E-01	2.46E-
130.5	3.07E-01	3.39E-02	1.18E-04	1.31E-04	1.52E-02	0.00E+00	4.26E-01	3.41E-04	9.98E-04	1.91E-01	2.56E-
131.0	3.02E-01	3.34E-02	1.16E-04	1.29E-04	1.49E-02	0.00E+00	4.24E-01	3.43E-04	1.02E-03	1.98E-01	2.66E-
131.5	2.98E-01	3.30E-02	1.14E-04	1.27E-04	1.47E-02	0.00E+00	4.21E-01	3.45E-04	1.04E-03	2.04E-01	2.77E-
132.0	2.94E-01	3.25E-02	1.13E-04	1.25E-04	1.45E-02	0.00E+00	4.18E-01	3.47E-04	1.07E-03	2.11E-01	2.87E-
132.5	2.89E-01	3.21E-02	1.11E-04	1.24E-04	1.43E-02	0.00E+00	4.15E-01	3.49E-04	1.09E-03	2.18E-01	2.98E-
133.0	2.85E-01	3.16E-02	1.10E-04	1.22E-04	1.41E-02	0.00E+00	4.11E-01	3.50E-04	1.11E-03	2.26E-01	3.09E-
133.5	2.81E-01	3.11E-02	1.08E-04	1.20E-04	1.39E-02	0.00E+00	4.08E-01	3.52E-04	1.14E-03	2.33E-01	3.20E-
134.0	2.76E-01	3.07E-02	1.06E-04	1.18E-04	1.37E-02	0.00E+00	4.04E-01	3.54E-04	1.16E-03	2.40E-01	3.32E-
134.5	2.72E-01	3.02E-02	1.05E-04	1.16E-04	1.34E-02	0.00E+00	4.01E-01	3.55E-04	1.18E-03	2.48E-01	3.43E-
135.0	2.67E-01	2.97E-02	1.03E-04	1.14E-04	1.32E-02	0.00E+00	3.97E-01	3.57E-04	1.20E-03	2.56E-01	3.55E-
135.5	2.63E-01	2.92E-02	1.01E-04	1.12E-04	1.30E-02	0.00E+00	3.93E-01	3.58E-04	1.22E-03	2.64E-01	3.66E-
136.0	2.58E-01	2.88E-02	9.97E-05	1.10E-04	1.28E-02	0.00E+00	3.89E-01	3.59E-04	1.25E-03	2.72E-01	3.78E-
136.5	2.54E-01	2.83E-02	9.81E-05	1.08E-04	1.25E-02	0.00E+00	3.85E-01	3.60E-04	1.27E-03	2.80E-01	3.90E-
137.0	2.49E-01	2.78E-02	9.64E-05	1.06E-04	1.23E-02	0.00E+00	3.81E-01	3.62E-04	1.29E-03	2.88E-01	4.02E-
137.5	2.45E-01	2.73E-02	9.47E-05	1.04E-04	1.21E-02	0.00E+00	3.76E-01	3.63E-04	1.31E-03	2.96E-01	4.14E-
138.0	2.40E-01	2.68E-02	9.30E-05	1.03E-04	1.19E-02	0.00E+00	3.72E-01	3.64E-04	1.33E-03	3.05E-01	4.26E-
138.5	2.36E-01	2.63E-02	9.13E-05	1.01E-04	1.16E-02	0.00E+00	3.68E-01	3.64E-04	1.34E-03	3.13E-01	4.38E-
139.0	2.31E-01	2.58E-02	8.95E-05	9.85E-05	1.14E-02	0.00E+00	3.63E-01	3.65E-04	1.36E-03	3.22E-01	4.50E-
139.5	2.26E-01	2.53E-02	8.78E-05	9.66E-05	1.12E-02	0.00E+00	3.58E-01	3.66E-04	1.38E-03	3.31E-01	4.62E-
140.0	2.22E-01	2.48E-02	8.61E-05	9.46E-05	1.10E-02	0.00E+00	3.53E-01	3.66E-04	1.40E-03	3.40E-01	4.74E-
141.0	2.13E-01	2.38E-02	8.26E-05	9.07E-05	1.05E-02	0.00E+00	3.43E-01	3.67E-04	1.43E-03	3.58E-01	4.98E-
142.0	2.03E-01	2.28E-02	7.91E-05	8.67E-05	1.00E-02	0.00E+00	3.33E-01	3.68E-04	1.46E-03	3.77E-01	5.21E-
143.0	1.94E-01	2.18E-02	7.56E-05	8.27E-05	9.58E-03	0.00E+00	3.22E-01	3.67E-04	1.49E-03	3.97E-01	5.44E-
144.0	1.85E-01	2.08E-02	7.20E-05	7.88E-05	9.12E-03	0.00E+00	3.11E-01	3.67E-04	1.51E-03	4.16E-01	5.65E-
145.0	1.75E-01	1.98E-02	6.85E-05	7.48E-05	8.66E-03	0.00E+00	2.99E-01	3.66E-04	1.53E-03	4.37E-01	5.86E-
146.0	1.66E-01	1.87E-02	6.50E-05	7.08E-05	8.20E-03	0.00E+00	2.87E-01	3.64E-04	1.55E-03	4.58E-01	6.05E-
147.0	1.57E-01	1.77E-02	6.14E-05	6.69E-05	7.74E-03	0.00E+00	2.75E-01	3.62E-04	1.56E-03	4.79E-01	6.23E-
148.0	1.48E-01	1.67E-02	5.78E-05	6.29E-05	7.28E-03	0.00E+00	2.62E-01	3.59E-04	1.57E-03	5.01E-01	6.38E-
149.0	1.38E-01	1.57E-02	5.43E-05	5.90E-05	6.83E-03	0.00E+00	2.49E-01	3.55E-04	1.57E-03	5.24E-01	6.51E-
150.0	1.29E-01	1.46E-02	5.07E-05	5.50E-05	6.37E-03	0.00E+00	2.35E-01	3.50E-04	1.57E-03	5.47E-01	6.61E-
151.0	1.20E-01	1.36E-02	4.72E-05	5.11E-05	5.92E-03	0.00E+00	2.21E-01	3.45E-04	1.56E-03	5.71E-01	6.68E-
152.0	1.11E-01	1.26E-02	4.36E-05	4.72E-05	5.46E-03	0.00E+00	2.07E-01	3.38E-04	1.54E-03	5.96E-01	6.70E-
153.0	1.01E-01	1.15E-02	4.00E-05	4.32E-05	5.00E-03	0.00E+00	1.92E-01	3.30E-04	1.52E-03	6.22E-01	6.67E-
154.0	9.21E-02	1.05E-02	3.64E-05	3.93E-05	4.55E-03	0.00E+00	1.76E-01	3.20E-04	1.48E-03	6.49E-01	6.59E-
155.0	8.27E-02	9.43E-03	3.27E-05	3.53E-05	4.08E-03	0.00E+00	1.61E-01	3.09E-04	1.44E-03	6.77E-01	6.43E-
156.0	7.33E-02	8.36E-03	2.90E-05	3.12E-05	3.62E-03	0.00E+00	1.44E-01	2.95E-04	1.38E-03	7.07E-01	6.19E-
157.0	6.37E-02	7.28E-03	2.52E-05	2.72E-05	3.14E-03	0.00E+00	1.27E-01	2.79E-04	1.31E-03	7.39E-01	5.84E-
158.0	5.39E-02	6.17E-03	2.14E-05	2.30E-05	2.66E-03	0.00E+00	1.09E-01	2.60E-04	1.21E-03	7.73E-01	5.38E-
159.0	4.40E-02	5.04E-03	1.75E-05	1.88E-05	2.17E-03	0.00E+00	8.98E-02	2.37E-04	1.10E-03	8.10E-01	4.78E-
160.0	3.45E-02	3.95E-03	1.37E-05	1.47E-05	1.70E-03	0.00E+00	7.12E-02	2.15E-04	9.90E-04	8.47E-01	4.07E-
162.0	2.04E-02	2.34E-03	8.12E-06	8.69E-06	1.01E-03	0.00E+00	4.31E-02	1.68E-04	7.59E-04	9.04E-01	2.85E-
164.0	1.42E-02	1.63E-03	5.65E-06	6.04E-06	6.99E-04	0.00E+00	3.07E-02	1.20E-04	5.53E-04	9.29E-01	2.35E-
166.0	1.12E-02	1.29E-03	4.48E-06	4.77E-06	5.52E-04	0.00E+00	2.48E-02	9.71E-05	4.57E-04	9.39E-01	2.22E-
168.0	9.44E-03	1.09E-03	3.79E-06	4.02E-06	4.66E-04	0.00E+00	2.14E-02	8.39E-05	4.02E-04	9.45E-01	2.25E-
170.0	8.26E-03	9.57E-04	3.32E-06	3.52E-06	4.07E-04	0.00E+00	1.92E-02	7.51E-05	3.65E-04	9.47E-01	2.40E-

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172.0	7.38E-03	8.58E-04	2.98E-06	3.15E-06	3.64E-04	0.00E+00	1.76E-02	6.86E-05	3.39E-04	9.47E-01	2.64E-
174.0	6.70E-03	7.80E-04	2.71E-06	2.86E-06	3.31E-04	0.00E+00	1.63E-02	6.36E-05	3.18E-04	9.45E-01	3.01E-
176.0	6.13E-03	7.16E-04	2.48E-06	2.62E-06	3.03E-04	0.00E+00	1.53E-02	5.95E-05	3.01E-04	9.42E-01	3.57E-
178.0	5.64E-03	6.60E-04	2.29E-06	2.41E-06	2.78E-04	0.00E+00	1.44E-02	5.58E-05	2.86E-04	9.34E-01	4.47E-
180.0	5.19E-03	6.08E-04	2.11E-06	2.21E-06	2.56E-04	0.00E+00	1.35E-02	5.23E-05	2.70E-04	9.20E-01	6.06E-
182.0	4.72E-03	5.54E-04	1.92E-06	2.01E-06	2.33E-04	0.00E+00	1.26E-02	4.85E-05	2.53E-04	8.91E-01	9.04E-
184.0	4.25E-03	5.00E-04	1.73E-06	1.81E-06	2.10E-04	0.00E+00	1.16E-02	4.44E-05	2.33E-04	8.52E-01	1.32E-
186.0	3.86E-03	4.55E-04	1.58E-06	1.65E-06	1.90E-04	0.00E+00	1.07E-02	4.11E-05	2.17E-04	8.18E-01	1.66E-
188.0	3.55E-03	4.20E-04	1.46E-06	1.51E-06	1.75E-04	0.00E+00	1.01E-02	3.85E-05	2.05E-04	7.94E-01	1.91E-
190.0	3.30E-03	3.91E-04	1.36E-06	1.41E-06	1.63E-04	0.00E+00	9.59E-03	3.64E-05	1.95E-04	7.77E-01	2.09E-
192.0	3.10E-03	3.67E-04	1.27E-06	1.32E-06	1.53E-04	0.00E+00	9.17E-03	3.47E-05	1.87E-04	7.64E-01	2.23E-
194.0	2.92E-03	3.47E-04	1.20E-06	1.24E-06	1.44E-04	0.00E+00	8.82E-03	3.32E-05	1.79E-04	7.54E-01	2.34E-
196.0	2.76E-03	3.29E-04	1.14E-06	1.18E-06	1.36E-04	0.00E+00	8.52E-03	3.19E-05	1.73E-04	7.46E-01	2.42E-
198.0	2.62E-03	3.12E-04	1.08E-06	1.12E-06	1.29E-04	0.00E+00	8.25E-03	3.08E-05	1.67E-04	7.39E-01	2.49E-
200.0	2.49E-03	2.98E-04	1.03E-06	1.06E-06	1.23E-04	0.00E+00	8.02E-03	2.97E-05	1.62E-04	7.34E-01	2.55E-
202.0	2.38E-03	2.85E-04	9.87E-07	1.01E-06	1.17E-04	0.00E+00	7.80E-03	2.88E-05	1.57E-04	7.30E-01	2.60E-
204.0	2.27E-03	2.73E-04	9.45E-07	9.68E-07	1.12E-04	0.00E+00	7.61E-03	2.79E-05	1.53E-04	7.26E-01	2.64E-
206.0	2.17E-03	2.62E-04	9.07E-07	9.26E-07	1.07E-04	0.00E+00	7.43E-03	2.71E-05	1.48E-04	7.23E-01	2.67E-
208.0	2.09E-03	2.51E-04	8.71E-07	8.88E-07	1.03E-04	0.00E+00	7.27E-03	2.64E-05	1.44E-04	7.20E-01	2.70E-
210.0	2.00E-03	2.42E-04	8.38E-07	8.53E-07	9.87E-05	0.00E+00	7.12E-03	2.57E-05	1.41E-04	7.17E-01	2.73E-
212.0	1.92E-03	2.33E-04	8.07E-07	8.20E-07	9.49E-05	0.00E+00	6.97E-03	2.50E-05	1.37E-04	7.15E-01	2.75E-
214.0	1.85E-03	2.24E-04	7.78E-07	7.89E-07	9.13E-05	0.00E+00	6.84E-03	2.44E-05	1.34E-04	7.14E-01	2.77E-
216.0	1.78E-03	2.17E-04	7.51E-07	7.60E-07	8.79E-05	0.00E+00	6.72E-03	2.38E-05	1.30E-04	7.12E-01	2.79E-
218.0	1.72E-03	2.09E-04	7.25E-07	7.33E-07	8.48E-05	0.00E+00	6.60E-03	2.33E-05	1.27E-04	7.10E-01	2.81E-
220.0	1.66E-03	2.02E-04	7.01E-07	7.07E-07	8.18E-05	0.00E+00	6.49E-03	2.27E-05	1.24E-04	7.09E-01	2.82E-
222.0	1.60E-03	1.95E-04	6.78E-07	6.83E-07	7.90E-05	0.00E+00	6.39E-03	2.22E-05	1.21E-04	7.08E-01	2.84E-
224.0	1.55E-03	1.89E-04	6.56E-07	6.60E-07	7.63E-05	0.00E+00	6.29E-03	2.18E-05	1.18E-04	7.07E-01	2.85E-
226.0	1.50E-03	1.83E-04	6.35E-07	6.38E-07	7.38E-05	0.00E+00	6.19E-03	2.13E-05	1.16E-04	7.06E-01	2.86E-
228.0	1.45E-03	1.78E-04	6.16E-07	6.17E-07	7.14E-05	0.00E+00	6.10E-03	2.09E-05	1.13E-04	7.05E-01	2.87E-
230.0	1.40E-03	1.72E-04	5.97E-07	5.98E-07	6.91E-05	0.00E+00	6.02E-03	2.05E-05	1.10E-04	7.04E-01	2.88E-
232.0	1.36E-03	1.67E-04	5.79E-07	5.79E-07	6.70E-05	0.00E+00	5.93E-03	2.01E-05	1.08E-04	7.03E-01	2.89E-
234.0	1.32E-03	1.62E-04	5.62E-07	5.61E-07	6.49E-05	0.00E+00	5.86E-03	1.97E-05	1.06E-04	7.03E-01	2.90E-
236.0	1.28E-03	1.58E-04	5.46E-07	5.44E-07	6.29E-05	0.00E+00	5.78E-03	1.93E-05	1.03E-04	7.02E-01	2.91E-
238.0	1.24E-03	1.53E-04	5.31E-07	5.28E-07	6.11E-05	0.00E+00	5.71E-03	1.90E-05	1.01E-04	7.01E-01	2.92E-
240.0	1.20E-03	1.49E-04	5.16E-07	5.12E-07	5.93E-05	0.00E+00	5.64E-03	1.86E-05	9.87E-05	7.01E-01	2.92E-
242.0	1.17E-03	1.45E-04	5.02E-07	4.98E-07	5.76E-05	0.00E+00	5.58E-03	1.83E-05	9.66E-05	7.00E-01	2.93E-
244.0	1.14E-03	1.41E-04	4.88E-07	4.83E-07	5.59E-05	0.00E+00	5.51E-03	1.80E-05	9.45E-05	6.99E-01	2.94E-
246.0	1.10E-03	1.37E-04	4.75E-07	4.70E-07	5.43E-05	0.00E+00	5.45E-03	1.77E-05	9.25E-05	6.99E-01	2.94E-
248.0	1.07E-03	1.34E-04	4.63E-07	4.57E-07	5.28E-05	0.00E+00	5.39E-03	1.74E-05	9.05E-05	6.98E-01	2.95E-
250.0	1.04E-03	1.30E-04	4.51E-07	4.44E-07	5.14E-05	0.00E+00	5.34E-03	1.71E-05	8.86E-05	6.98E-01	2.96E-
252.0	1.02E-03	1.27E-04	4.39E-07	4.32E-07	5.00E-05	0.00E+00	5.28E-03	1.69E-05	8.68E-05	6.97E-01	2.96E-
254.0	9.88E-04	1.24E-04	4.28E-07	4.21E-07	4.87E-05	0.00E+00	5.23E-03	1.66E-05	8.50E-05	6.97E-01	2.97E-
256.0	9.62E-04	1.20E-04	4.17E-07	4.10E-07	4.74E-05	0.00E+00	5.18E-03	1.63E-05	8.32E-05	6.97E-01	2.97E-
258.0	9.37E-04	1.18E-04	4.07E-07	3.99E-07	4.62E-05	2.51E-09	5.13E-03	1.61E-05	8.15E-05	6.96E-01	2.98E-
260.0	9.13E-04	1.15E-04	3.97E-07	3.89E-07	4.50E-05	5.25E-08	5.09E-03	1.59E-05	7.98E-05	6.96E-01	2.98E-
262.0	8.90E-04	1.12E-04	3.88E-07	3.79E-07	4.38E-05	1.93E-07	5.04E-03	1.56E-05	7.82E-05	6.95E-01	2.99E-
264.0	8.67E-04	1.09E-04	3.79E-07	3.69E-07	4.27E-05	4.57E-07	5.00E-03	1.54E-05	7.67E-05	6.95E-01	2.99E-
266.0	8.46E-04	1.07E-04	3.70E-07	3.60E-07	4.17E-05	8.79E-07	4.96E-03	1.52E-05	7.51E-05	6.95E-01	3.00E-
268.0	8.25E-04	1.04E-04	3.61E-07	3.52E-07	4.07E-05	1.49E-06	4.92E-03	1.50E-05	7.36E-05	6.94E-01	3.00E-
270.0	8.05E-04	1.02E-04	3.53E-07	3.43E-07	3.97E-05	2.33E-06	4.88E-03	1.48E-05	7.22E-05	6.94E-01	3.00E-

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272.0	7.86E-04	9.95E-05	3.45E-07	3.35E-07	3.87E-05	3.42E-06	4.84E-03	1.46E-05	7.08E-05	6.93E-01	3.01E-
274.0	7.68E-04	9.73E-05	3.37E-07	3.27E-07	3.78E-05	4.80E-06	4.81E-03	1.44E-05	6.94E-05	6.93E-01	3.01E-
276.0	7.50E-04	9.52E-05	3.30E-07	3.19E-07	3.69E-05	6.51E-06	4.77E-03	1.43E-05	6.81E-05	6.93E-01	3.02E-
278.0	7.33E-04	9.31E-05	3.23E-07	3.12E-07	3.61E-05	8.58E-06	4.74E-03	1.41E-05	6.68E-05	6.92E-01	3.02E-
280.0	7.16E-04	9.11E-05	3.16E-07	3.05E-07	3.53E-05	1.11E-05	4.71E-03	1.39E-05	6.55E-05	6.92E-01	3.02E-
282.0	7.00E-04	8.92E-05	3.09E-07	2.98E-07	3.45E-05	1.40E-05	4.68E-03	1.38E-05	6.43E-05	6.92E-01	3.03E-
284.0	6.84E-04	8.73E-05	3.03E-07	2.91E-07	3.37E-05	1.74E-05	4.65E-03	1.36E-05	6.30E-05	6.91E-01	3.03E-
286.0	6.69E-04	8.55E-05	2.96E-07	2.85E-07	3.30E-05	2.13E-05	4.62E-03	1.35E-05	6.19E-05	6.91E-01	3.03E-
288.0	6.55E-04	8.37E-05	2.90E-07	2.79E-07	3.22E-05	2.59E-05	4.59E-03	1.33E-05	6.07E-05	6.91E-01	3.04E-
290.0	6.40E-04	8.20E-05	2.84E-07	2.73E-07	3.15E-05	3.10E-05	4.57E-03	1.32E-05	5.96E-05	6.91E-01	3.04E-
295.0	6.07E-04	7.80E-05	2.70E-07	2.59E-07	2.99E-05	4.73E-05	4.51E-03	1.28E-05	5.69E-05	6.90E-01	3.05E-
300.0	5.76E-04	7.42E-05	2.57E-07	2.45E-07	2.84E-05	6.95E-05	4.45E-03	1.26E-05	5.44E-05	6.89E-01	3.06E-
305.0	5.48E-04	7.07E-05	2.45E-07	2.33E-07	2.70E-05	9.93E-05	4.41E-03	1.23E-05	5.20E-05	6.88E-01	3.07E-
310.0	5.21E-04	6.75E-05	2.34E-07	2.22E-07	2.57E-05	1.39E-04	4.37E-03	1.20E-05	4.98E-05	6.88E-01	3.07E-
315.0	4.96E-04	6.45E-05	2.24E-07	2.11E-07	2.44E-05	1.94E-04	4.34E-03	1.18E-05	4.77E-05	6.87E-01	3.08E-
320.0	4.73E-04	6.17E-05	2.14E-07	2.02E-07	2.33E-05	2.68E-04	4.31E-03	1.16E-05	4.57E-05	6.86E-01	3.09E-
325.0	4.52E-04	5.90E-05	2.05E-07	1.92E-07	2.22E-05	3.72E-04	4.30E-03	1.15E-05	4.39E-05	6.86E-01	3.09E-
330.0	4.32E-04	5.66E-05	1.96E-07	1.84E-07	2.13E-05	5.24E-04	4.29E-03	1.13E-05	4.21E-05	6.85E-01	3.10E-
335.0	4.13E-04	5.42E-05	1.88E-07	1.76E-07	2.03E-05	7.63E-04	4.29E-03	1.13E-05	4.04E-05	6.84E-01	3.10E-
340.0	3.95E-04	5.21E-05	1.80E-07	1.68E-07	1.95E-05	1.20E-03	4.31E-03	1.12E-05	3.88E-05	6.83E-01	3.11E-
345.0	3.78E-04	4.99E-05	1.73E-07	1.61E-07	1.86E-05	3.26E-03	4.35E-03	1.12E-05	3.73E-05	6.81E-01	3.11E-
350.0	3.58E-04	4.74E-05	1.64E-07	1.53E-07	1.76E-05	1.56E-02	4.37E-03	1.09E-05	3.53E-05	6.72E-01	3.07E-
360.0	3.18E-04	4.23E-05	1.47E-07	1.36E-07	1.57E-05	5.16E-02	4.30E-03	9.91E-06	3.11E-05	6.47E-01	2.97E-
370.0	2.84E-04	3.80E-05	1.32E-07	1.21E-07	1.40E-05	8.42E-02	4.18E-03	8.91E-06	2.75E-05	6.24E-01	2.88E-
380.0	2.56E-04	3.44E-05	1.19E-07	1.09E-07	1.26E-05	1.11E-01	4.03E-03	8.02E-06	2.44E-05	6.05E-01	2.80E-
390.0	2.33E-04	3.13E-05	1.09E-07	9.90E-08	1.14E-05	1.33E-01	3.88E-03	7.24E-06	2.18E-05	5.89E-01	2.74E-
400.0	2.13E-04	2.88E-05	9.97E-08	9.05E-08	1.05E-05	1.51E-01	3.73E-03	6.56E-06	1.96E-05	5.77E-01	2.69E-
420.0	1.81E-04	2.47E-05	8.56E-08	7.70E-08	8.90E-06	1.75E-01	3.44E-03	5.48E-06	1.61E-05	5.59E-01	2.62E-
440.0	1.57E-04	2.16E-05	7.49E-08	6.69E-08	7.73E-06	1.89E-01	3.18E-03	4.65E-06	1.35E-05	5.49E-01	2.59E-
460.0	1.39E-04	1.92E-05	6.65E-08	5.89E-08	6.81E-06	1.96E-01	2.95E-03	4.02E-06	1.14E-05	5.44E-01	2.58E-
480.0	1.24E-04	1.72E-05	5.98E-08	5.26E-08	6.07E-06	1.98E-01	2.74E-03	3.51E-06	9.83E-06	5.42E-01	2.58E-
500.0	1.11E-04	1.56E-05	5.42E-08	4.73E-08	5.47E-06	1.97E-01	2.55E-03	3.10E-06	8.54E-06	5.42E-01	2.59E-
520.0	1.01E-04	1.43E-05	4.95E-08	4.29E-08	4.96E-06	1.94E-01	2.37E-03	2.77E-06	7.48E-06	5.43E-01	2.60E-
540.0	9.21E-05	1.31E-05	4.54E-08	3.92E-08	4.53E-06	1.90E-01	2.22E-03	2.50E-06	6.60E-06	5.46E-01	2.62E-
560.0	8.45E-05	1.21E-05	4.19E-08	3.59E-08	4.15E-06	1.85E-01	2.08E-03	2.26E-06	5.85E-06	5.49E-01	2.64E-
580.0	7.78E-05	1.12E-05	3.88E-08	3.31E-08	3.82E-06	1.79E-01	1.95E-03	2.07E-06	5.22E-06	5.53E-01	2.67E-
600.0	7.19E-05	1.04E-05	3.61E-08	3.06E-08	3.53E-06	1.72E-01	1.84E-03	1.90E-06	4.67E-06	5.56E-01	2.69E-

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