```cpp
/*
  FILE: Altura.cpp

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*/

#include "stdafx.h"
#include <math.h>
#include "../Nav/angulos.hpp"
#include "Altura.hpp"


void TestRefraccion(void)
{
 FILE *fp = fopen( "TestRefraccion.out", "w" );

 for( double Ha = 0;  Ha <= 120;  Ha++ ) {
  double r01 = (0.5743+0.0705*Ha+0.00007*SQ(Ha))/(1.0+0.505*Ha+0.0845*SQ(Ha));
  double r02 = 0.0162 / TAN( Ha );
  double r03 = 0.0167 / TAN( Ha+7.31/(Ha+4.4) );
  fprintf( fp, "%lf\t%lf\t%lf\t%lf\n", Ha, r01, r02, r03 );
  }

 fclose( fp );
}
```

Ha	R1	R2	R3
0	0.5743	1.#INF00	0.575775
1	0.405706	0.928097	0.406296
2	0.304761	0.463907	0.304208
3	0.240095	0.309114	0.239552
4	0.196116	0.231671	0.195993
5	0.16471	0.185167	0.165049
6	0.141377	0.154133	0.142099
7	0.123478	0.131938	0.124477
8	0.109378	0.115269	0.11056
9	0.098024	0.102283	0.09931
10	0.08871	0.091875	0.090038
11	0.080948	0.083342	0.082269
12	0.07439	0.076215	0.075668
13	0.068784	0.07017	0.06999
14	0.063942	0.064975	0.065055
15	0.059721	0.060459	0.060725
16	0.056011	0.056496	0.056894
17	0.052728	0.052988	0.053481
18	0.049802	0.049858	0.050418
19	0.04718	0.047048	0.047655
20	0.044817	0.044509	0.045147
21	0.042678	0.042202	0.04286
22	0.040733	0.040096	0.040766
23	0.038957	0.038165	0.038839
24	0.037329	0.036386	0.03706
25	0.035831	0.034741	0.035411
26	0.03445	0.033215	0.033878
27	0.033171	0.031794	0.032449
28	0.031985	0.030468	0.031112
29	0.030881	0.029226	0.029858
30	0.029851	0.028059	0.028679
31	0.028889	0.026961	0.027568
32	0.027988	0.025925	0.026518
33	0.027142	0.024946	0.025525
34	0.026346	0.024017	0.024582
35	0.025596	0.023136	0.023686
36	0.024889	0.022297	0.022834
37	0.024221	0.021498	0.02202
38	0.023588	0.020735	0.021243
39	0.022988	0.020005	0.020499
40	0.022419	0.019306	0.019787
41	0.021878	0.018636	0.019102
42	0.021363	0.017992	0.018445
43	0.020872	0.017372	0.017812
44	0.020405	0.016776	0.017202
45	0.019958	0.0162	0.016614
46	0.019531	0.015644	0.016046
47	0.019123	0.015107	0.015496
48	0.018731	0.014587	0.014963
49	0.018357	0.014082	0.014447
50	0.017997	0.013593	0.013946
51	0.017652	0.013119	0.01346
52	0.01732	0.012657	0.012987
53	0.017001	0.012208	0.012526
54	0.016694	0.01177	0.012078

55	0.016399	0.011343	0.01164
56	0.016114	0.010927	0.011213
57	0.015839	0.01052	0.010796
58	0.015574	0.010123	0.010388
59	0.015318	0.009734	0.009989
60	0.015071	0.009353	0.009598
61	0.014832	0.00898	0.009214
62	0.014601	0.008614	0.008838
63	0.014377	0.008254	0.008469
64	0.014161	0.007901	0.008107
65	0.013951	0.007554	0.00775
66	0.013748	0.007213	0.007399
67	0.013551	0.006876	0.007054
68	0.013359	0.006545	0.006713
69	0.013174	0.006219	0.006377
70	0.012994	0.005896	0.006046
71	0.012819	0.005578	0.005719
72	0.012648	0.005264	0.005395
73	0.012483	0.004953	0.005076
74	0.012322	0.004645	0.004759
75	0.012166	0.004341	0.004446
76	0.012014	0.004039	0.004136
77	0.011865	0.00374	0.003828
78	0.011721	0.003443	0.003523
79	0.01158	0.003149	0.00322
80	0.011443	0.002856	0.002919
81	0.01131	0.002566	0.002619
82	0.011179	0.002277	0.002322
83	0.011052	0.001989	0.002026
84	0.010928	0.001703	0.001731
85	0.010807	0.001417	0.001437
86	0.010689	0.001133	0.001144
87	0.010573	0.000849	0.000852
88	0.010461	0.000566	0.00056
89	0.01035	0.000283	0.000269
90	0.010243	0	-0.000023