

12-05. MERŐLEGES LÖKÉSHULLÁM. ( $\gamma=1.4$ )

általános esetben

$\gamma=1.4$

$$M_2 = \left( \frac{(\gamma-1) \cdot M_1^2 + 2}{2 \cdot \gamma \cdot M_1^2 - (\gamma-1)} \right)^{\frac{1}{2}}$$

$$M_2 = \left( \frac{M_1^2 + 5}{7 \cdot M_1^2 - 1} \right)^{\frac{1}{2}}$$

$$\frac{p_2}{p_1} = \frac{2 \cdot \gamma \cdot M_1^2 - (\gamma-1)}{\gamma+1}$$

$$\frac{p_2}{p_1} = \frac{7 \cdot M_1^2 - 1}{6}$$

$$\frac{\rho_2}{\rho_1} = \frac{(\gamma+1) \cdot M_1^2}{(\gamma-1) \cdot M_1^2 + 2}$$

$$\frac{\rho_2}{\rho_1} = \frac{6 \cdot M_1^2}{M_1^2 + 5}$$

$$\frac{T_2}{T_1} = \frac{[(\gamma-1) \cdot M_1^2 + 2] \cdot [2 \cdot \gamma \cdot M_1^2 - (\gamma-1)]}{[(\gamma+1) \cdot M_1]^2}$$

$$\frac{T_2}{T_1} = \frac{(M_1^2 + 5) \cdot (7 \cdot M_1^2 - 1)}{36 \cdot M_1^2}$$

$$\frac{p_{t2}}{p_{t1}}$$

$$\frac{p_{t2}}{p_{t1}} =$$

$$= \left( \frac{\gamma+1}{2 \cdot \gamma \cdot M_1^2 - (\gamma-1)} \right)^{\frac{1}{\gamma-1}} \cdot \left( \frac{(\gamma+1) \cdot M_1^2}{(\gamma-1) \cdot M_1^2 + 2} \right)^{\frac{\gamma}{\gamma-1}}$$

$$= \left( \frac{6}{7 \cdot M_1^2 - 1} \right)^{\frac{5}{2}} \cdot \left( \frac{6 \cdot M_1^2}{M_1^2 + 5} \right)^{\frac{7}{2}}$$

$$\frac{p_{t2}}{p_1}$$

$$\frac{p_{t2}}{p_{t1}} =$$

$$= \frac{2 \cdot \gamma \cdot M_1^2 - (\gamma-1)}{\gamma+1} \cdot \left( 1 + \frac{\gamma-1}{2} \cdot \frac{(\gamma-1) \cdot M_1^2 + 2}{2 \cdot \gamma \cdot M_1^2 - (\gamma-1)} \right)^{\frac{\gamma}{\gamma-1}}$$

$$= \frac{7 \cdot M_1^2 - 1}{6} \cdot \left( \frac{36 \cdot M_1^2}{35 \cdot M_1^2 - 5} \right)^{\frac{7}{2}}$$

$$M_2^2 = \frac{M_1^2 + \frac{2}{\gamma-1}}{\frac{2\gamma}{\gamma-1} M_1^2 - 1}$$

MERŐLEGES LÖKÉSHULLÁM. (Ideális gáz,  $\gamma=1.4$ )

$M_1$	$M_2$	$p_2/p_1$	$e_2/e_1$	$T_2/T_1$	$p_2/p_{t1}$	$p_2/p_1$
1.00	1.000000	1.000000	1.000000	1.000000	1.000000	1.892930
1.01	0.990132	1.023450	1.016694	1.006645	0.999999	1.915214
1.02	0.980520	1.047133	1.033442	1.013249	0.999991	1.937896
1.03	0.971154	1.071050	1.050240	1.019814	0.999967	1.960968
<u>1.04</u>	<u>0.962026</u>	<u>1.095200</u>	<u>1.067088</u>	<u>1.026345</u>	<u>0.999923</u>	<u>1.984423</u>
1.05	0.953126	1.119583	1.083982	1.032843	0.999853	2.008252
1.06	0.944445	1.144200	1.100921	1.039311	0.999751	2.032453
1.07	0.935977	1.169050	1.117903	1.045753	0.999612	2.057018
1.08	0.927713	1.194133	1.134925	1.052169	0.999431	2.081942
<u>1.09</u>	<u>0.919647</u>	<u>1.219450</u>	<u>1.151985</u>	<u>1.058564</u>	<u>0.999204</u>	<u>2.107219</u>
1.10	0.911771	1.245000	1.169082	1.064938	0.998928	2.132847
1.11	0.904078	1.270783	1.186213	1.071294	0.998599	2.158819
1.12	0.896563	1.296800	1.203377	1.077634	0.998213	2.185133
1.13	0.889219	1.323050	1.220571	1.083960	0.997769	2.211784
<u>1.14</u>	<u>0.882042</u>	<u>1.349533</u>	<u>1.237793</u>	<u>1.090274</u>	<u>0.997261</u>	<u>2.238769</u>
1.15	0.875024	1.376250	1.255041	1.096577	0.996690	2.266083
1.16	0.868162	1.403200	1.272314	1.102872	0.996052	2.293725
1.17	0.861451	1.430383	1.289610	1.109159	0.995345	2.321689
1.18	0.854885	1.457799	1.306927	1.115441	0.994569	2.349976
<u>1.19</u>	<u>0.848459</u>	<u>1.485449</u>	<u>1.324262</u>	<u>1.121719</u>	<u>0.993720</u>	<u>2.378581</u>
1.20	0.842171	1.513333	1.341615	1.127994	0.992799	2.407501
1.21	0.836014	1.541449	1.358982	1.134267	0.991803	2.436734
1.22	0.829987	1.569799	1.376364	1.140541	0.990731	2.466279
1.23	0.824083	1.598383	1.393757	1.146816	0.989584	2.496133
<u>1.24</u>	<u>0.818301</u>	<u>1.627199</u>	<u>1.411160</u>	<u>1.153093</u>	<u>0.988359</u>	<u>2.526292</u>
1.25	0.812636	1.656249	1.428571	1.159375	0.987057	2.556758
1.26	0.807085	1.685532	1.445989	1.165661	0.985677	2.587525
1.27	0.801645	1.715049	1.463412	1.171952	0.984219	2.618595
1.28	0.796312	1.744799	1.480838	1.178251	0.982682	2.649963
<u>1.29</u>	<u>0.791084</u>	<u>1.774782</u>	<u>1.498266</u>	<u>1.184557</u>	<u>0.981067</u>	<u>2.681630</u>
1.30	0.785957	1.804999	1.515695	1.190873	0.979374	2.713593
1.31	0.780929	1.835449	1.533121	1.197198	0.977602	2.745851
1.32	0.775998	1.866132	1.550545	1.203533	0.975752	2.778401
1.33	0.771159	1.897049	1.567965	1.209880	0.973825	2.811245
1.34	0.766412	1.928199	1.585378	1.216239	0.971820	2.844379

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$M_1$	$M_2$	$p_2/p_1$	$\rho_2/\rho_1$	$T_2/T_1$	$p_2/p_{1i}$	$p_2/p_1$
1.35	0.761753	1.959582	1.602785	1.222611	0.969738	2.877804
1.36	0.757181	1.991199	1.620182	1.228997	0.967579	2.911517
1.37	0.752692	2.023049	1.637569	1.235398	0.965345	2.945517
1.38	0.748286	2.055132	1.654944	1.241814	0.963036	2.979805
<u>1.39</u>	<u>0.743959</u>	<u>2.087449</u>	<u>1.672307</u>	<u>1.248245</u>	<u>0.960652</u>	<u>3.014377</u>
1.40	0.739709	2.119999	1.689655	1.254694	0.958195	3.049234
1.41	0.735536	2.152782	1.706987	1.261159	0.955665	3.084374
1.42	0.731436	2.185799	1.724302	1.267642	0.953063	3.119798
1.43	0.727408	2.219049	1.741600	1.274144	0.950391	3.155503
<u>1.44</u>	<u>0.723451</u>	<u>2.252532</u>	<u>1.758877</u>	<u>1.280665</u>	<u>0.947648</u>	<u>3.191490</u>
1.45	0.719562	2.286248	1.776134	1.287205	0.944837	3.227757
1.46	0.715740	2.320198	1.793370	1.293765	0.941958	3.264303
1.47	0.711983	2.354382	1.810582	1.300345	0.939013	3.301130
1.48	0.708290	2.388798	1.827770	1.306947	0.936001	3.338232
<u>1.49</u>	<u>0.704659</u>	<u>2.423448</u>	<u>1.844932</u>	<u>1.313570</u>	<u>0.932926</u>	<u>3.375614</u>
1.50	0.701089	2.458332	1.862068	1.320216	0.929787	3.413273
1.51	0.697578	2.493448	1.879177	1.326883	0.926586	3.451208
1.52	0.694125	2.528798	1.896257	1.333574	0.923325	3.489418
1.53	0.690729	2.564381	1.913307	1.340288	0.920004	3.527904
<u>1.54</u>	<u>0.687388</u>	<u>2.600198</u>	<u>1.930326</u>	<u>1.347025</u>	<u>0.916625</u>	<u>3.566664</u>
1.55	0.684101	2.636248	1.947314	1.353787	0.913189	3.605699
1.56	0.680867	2.672531	1.964270	1.360572	0.909697	3.645008
1.57	0.677685	2.709048	1.981191	1.367383	0.906151	3.684590
1.58	0.674554	2.745798	1.998078	1.374219	0.902552	3.724444
<u>1.59</u>	<u>0.671471</u>	<u>2.782781</u>	<u>2.014930</u>	<u>1.381081</u>	<u>0.898902</u>	<u>3.764571</u>
1.60	0.668438	2.819998	2.031745	1.387968	0.895201	3.804971
1.61	0.665451	2.857448	2.048523	1.394882	0.891451	3.845639
1.62	0.662511	2.895131	2.065263	1.401822	0.887654	3.886581
1.63	0.659616	2.933048	2.081964	1.408789	0.883810	3.927794
<u>1.64</u>	<u>0.656766</u>	<u>2.971198</u>	<u>2.098626</u>	<u>1.415782</u>	<u>0.879921</u>	<u>3.969275</u>
1.65	0.653959	3.009581	2.115247	1.422804	0.875989	4.011029
1.66	0.651194	3.048197	2.131826	1.429853	0.872014	4.053050
1.67	0.648471	3.087047	2.148364	1.436929	0.867999	4.095342
1.68	0.645789	3.126130	2.164859	1.444034	0.863944	4.137902
1.69	0.643147	3.165447	2.181310	1.451167	0.859852	4.180733

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$M_1$	$M_2$	$p_2/p_1$	$e_2/e_1$	$T_2/T_1$	$p_2/p_{t1}$	$p_2/p_1$
1.70	0.640544	3.204997	2.197717	1.458330	0.855721	4.223830
1.71	0.637979	3.244780	2.214080	1.465521	0.851556	4.267195
1.72	0.635452	3.284797	2.230397	1.472741	0.847357	4.310829
1.73	0.632962	3.325047	2.246668	1.479990	0.843124	4.354731
<u>1.74</u>	<u>0.630508</u>	<u>3.365530</u>	<u>2.262892</u>	<u>1.487269</u>	<u>0.838860</u>	<u>4.398899</u>
1.75	0.628089	3.406247	2.279069	1.494579	0.834566	4.443336
1.76	0.625705	3.447197	2.295197	1.501917	0.830242	4.488039
1.77	0.623354	3.488380	2.311278	1.509287	0.825891	4.533008
1.78	0.621038	3.529797	2.327309	1.516686	0.821514	4.578243
<u>1.79</u>	<u>0.618754</u>	<u>3.571447</u>	<u>2.343291</u>	<u>1.524116</u>	<u>0.817111</u>	<u>4.623744</u>
1.80	0.616501	3.613330	2.359222	1.531577	0.812684	4.669511
1.81	0.614281	3.655447	2.375103	1.539068	0.808235	4.715546
1.82	0.612091	3.697797	2.390933	1.546592	0.803763	4.761844
1.83	0.609931	3.740380	2.406711	1.554146	0.799272	4.808409
<u>1.84</u>	<u>0.607802</u>	<u>3.783196</u>	<u>2.422437</u>	<u>1.561731</u>	<u>0.794761</u>	<u>4.855238</u>
1.85	0.605701	3.826247	2.438111	1.569349	0.790232	4.902332
1.86	0.603629	3.869530	2.453732	1.576998	0.785687	4.949691
1.87	0.601585	3.913046	2.469299	1.584679	0.781125	4.997315
1.88	0.599569	3.956796	2.484813	1.592392	0.776549	5.045204
<u>1.89</u>	<u>0.597579</u>	<u>4.000780</u>	<u>2.500273</u>	<u>1.600137</u>	<u>0.771959</u>	<u>5.093356</u>
1.90	0.595617	4.044996	2.515678	1.607915	0.767357	5.141773
1.91	0.593680	4.089446	2.531029	1.615725	0.762744	5.190454
1.92	0.591769	4.134129	2.546324	1.623568	0.758120	5.239398
1.93	0.589883	4.179046	2.561564	1.631443	0.753486	5.288606
<u>1.94</u>	<u>0.588022</u>	<u>4.224195</u>	<u>2.576748</u>	<u>1.639351</u>	<u>0.748845</u>	<u>5.338077</u>
1.95	0.586185	4.269579	2.591876	1.647293	0.744196	5.387814
1.96	0.584372	4.315196	2.606948	1.655267	0.739540	5.437811
1.97	0.582583	4.361045	2.621963	1.663275	0.734880	5.488074
1.98	0.580816	4.407129	2.636921	1.671317	0.730214	5.538599
<u>1.99</u>	<u>0.579072</u>	<u>4.453445</u>	<u>2.651822</u>	<u>1.679391</u>	<u>0.725546</u>	<u>5.589385</u>
2.00	0.577350	4.499996	2.666665	1.687499	0.720874	5.640437
2.01	0.575651	4.546779	2.681452	1.695641	0.716201	5.691750
2.02	0.573972	4.593795	2.696180	1.703817	0.711528	5.743325
2.03	0.572315	4.641045	2.710850	1.712026	0.706853	5.795163
2.04	0.570679	4.688528	2.725461	1.720269	0.702181	5.847263

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$M_1$	$M_2$	$P_2/P_1$	$e_2/e_1$	$T_2/T_1$	$P_{02}/P_{01}$	$P_{02}/P_1$
2.05	0.569063	4.736245	2.740015	1.728547	0.697509	5.899625
2.06	0.567467	4.784195	2.754510	1.736859	0.692840	5.952250
2.07	0.565890	4.832378	2.768946	1.745205	0.688174	6.005136
2.08	0.564334	4.880795	2.783323	1.753585	0.683512	6.058285
<u>2.09</u>	<u>0.562796</u>	<u>4.929445</u>	<u>2.797642</u>	<u>1.762000</u>	<u>0.678856</u>	<u>6.111695</u>
2.10	0.561277	4.978328	2.811901	1.770449	0.674204	6.165369
2.11	0.559777	5.027444	2.826101	1.778933	0.669559	6.219304
2.12	0.558294	5.076795	2.840241	1.787452	0.664920	6.273498
2.13	0.556830	5.126378	2.854322	1.796005	0.660289	6.327957
<u>2.14</u>	<u>0.555383</u>	<u>5.176195</u>	<u>2.868344</u>	<u>1.804593</u>	<u>0.655666</u>	<u>6.382676</u>
2.15	0.553954	5.226244	2.882306	1.813217	0.651052	6.437654
2.16	0.552541	5.276527	2.896208	1.821874	0.646448	6.492896
2.17	0.551145	5.327044	2.910050	1.830568	0.641854	6.548400
2.18	0.549766	5.377794	2.923833	1.839296	0.637270	6.604163
<u>2.19</u>	<u>0.548403</u>	<u>5.428777</u>	<u>2.937555</u>	<u>1.848060</u>	<u>0.632697</u>	<u>6.660188</u>
2.20	0.547056	5.479994	2.951218	1.856858	0.628137	6.716474
2.21	0.545725	5.531444	2.964821	1.865692	0.623589	6.773018
2.22	0.544409	5.583127	2.978364	1.874562	0.619054	6.829829
2.23	0.543108	5.635044	2.991847	1.883467	0.614532	6.886897
<u>2.24</u>	<u>0.541823</u>	<u>5.687194</u>	<u>3.005269</u>	<u>1.892407</u>	<u>0.610024</u>	<u>6.944227</u>
2.25	0.540552	5.739577	3.018632	1.901383	0.605531	7.001815
2.26	0.539295	5.792193	3.031935	1.910395	0.601052	7.059666
2.27	0.538053	5.845044	3.045178	1.919443	0.596588	7.117776
2.28	0.536826	5.898127	3.058361	1.928525	0.592141	7.176148
<u>2.29</u>	<u>0.535612</u>	<u>5.951443</u>	<u>3.071484</u>	<u>1.937644</u>	<u>0.587710</u>	<u>7.234779</u>
2.30	0.534411	6.004993	3.084547	1.946799	0.583295	7.293673
2.31	0.533225	6.058776	3.097550	1.955990	0.578898	7.352826
2.32	0.532051	6.112793	3.110493	1.965217	0.574517	7.412240
2.33	0.530891	6.167043	3.123377	1.974479	0.570155	7.471911
<u>2.34</u>	<u>0.529743</u>	<u>6.221526</u>	<u>3.136201</u>	<u>1.983778</u>	<u>0.565811</u>	<u>7.531845</u>
2.35	0.528608	6.276242	3.148965	1.993113	0.561485	7.592037
2.36	0.527486	6.331193	3.161670	2.002484	0.557178	7.652491
2.37	0.526376	6.386376	3.174315	2.011891	0.552890	7.713206
2.38	0.525278	6.441793	3.186901	2.021335	0.548622	7.774180
2.39	0.524192	6.497442	3.199427	2.030814	0.544373	7.835413

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2.40	0.523118	6.553325	3.211895	2.040330	0.540145	7.896904
2.41	0.522055	6.609442	3.224303	2.049883	0.535936	7.958658
2.42	0.521004	6.665792	3.236652	2.059472	0.531749	8.020673
2.43	0.519965	6.722375	3.248941	2.069097	0.527582	8.082944
<u>2.44</u>	<u>0.518936</u>	<u>6.779192</u>	<u>3.261173</u>	<u>2.078759</u>	<u>0.523436</u>	<u>8.145477</u>
2.45	0.517918	6.836242	3.273346	2.088457	0.519311	8.208270
2.46	0.516911	6.893526	3.285460	2.098192	0.515208	8.271322
2.47	0.515915	6.951042	3.297515	2.107964	0.511127	8.334635
2.48	0.514930	7.008791	3.309512	2.117772	0.507068	8.398204
<u>2.49</u>	<u>0.513954</u>	<u>7.066775</u>	<u>3.321451</u>	<u>2.127617</u>	<u>0.503031</u>	<u>8.462038</u>
2.50	0.512989	7.124991	3.333332	2.137498	0.499016	8.526127
2.51	0.512034	7.183441	3.345155	2.147417	0.495023	8.590477
2.52	0.511089	7.242125	3.356920	2.157372	0.491053	8.655087
2.53	0.510154	7.301041	3.368627	2.167364	0.487106	8.719954
<u>2.54</u>	<u>0.509229</u>	<u>7.360191</u>	<u>3.380277</u>	<u>2.177392</u>	<u>0.483181</u>	<u>8.785081</u>
2.55	0.508313	7.419574	3.391870	2.187459	0.479280	8.850468
2.56	0.507406	7.479190	3.403405	2.197561	0.475402	8.916118
2.57	0.506509	7.539041	3.414884	2.207700	0.471547	8.982022
2.58	0.505621	7.599124	3.426305	2.217877	0.467716	9.048188
<u>2.59</u>	<u>0.504741</u>	<u>7.659441</u>	<u>3.437670</u>	<u>2.228091</u>	<u>0.463908</u>	<u>9.114614</u>
2.60	0.503871	7.719991	3.448978	2.238341	0.460124	9.181297
2.61	0.503010	7.780773	3.460230	2.248629	0.456363	9.248240
2.62	0.502157	7.841790	3.471426	2.258954	0.452626	9.315443
2.63	0.501313	7.903041	3.482565	2.269316	0.448913	9.382906
<u>2.64</u>	<u>0.500477</u>	<u>7.964523</u>	<u>3.493649</u>	<u>2.279715</u>	<u>0.445223</u>	<u>9.450624</u>
2.65	0.499650	8.026239	3.504678	2.290151	0.441558	9.518605
2.66	0.498830	8.088190	3.515650	2.300625	0.437916	9.586843
2.67	0.498019	8.150373	3.526567	2.311135	0.434299	9.655341
2.68	0.497216	8.212790	3.537430	2.321683	0.430706	9.724098
<u>2.69</u>	<u>0.496421</u>	<u>8.275439</u>	<u>3.548237</u>	<u>2.332268</u>	<u>0.427136</u>	<u>9.793111</u>
2.70	0.495634	8.338323	3.558989	2.342891	0.423591	9.862389
2.71	0.494854	8.401439	3.569687	2.353550	0.420070	9.931919
2.72	0.494082	8.464789	3.580332	2.364247	0.416573	10.00171
2.73	0.493317	8.528372	3.590921	2.374982	0.413100	10.07177
2.74	0.492560	8.592189	3.601457	2.385753	0.409651	10.14207

MERŐLEGES LÖKÉSHULLÁM. (Ideális gáz, $\gamma=1.4$ )						
$M_1$	$M_2$	$p_2/p_1$	$\rho_2/\rho_1$	$T_2/T_1$	$p_2/p_{1i}$	$p_2/p_1$
2.75	0.491810	8.656240	3.611939	2.396563	0.406226	10.21265
2.76	0.491068	8.720522	3.622367	2.407410	0.402826	10.28347
2.77	0.490332	8.785038	3.632742	2.418294	0.399449	10.35456
2.78	0.489604	8.849789	3.643064	2.429216	0.396097	10.42591
<u>2.79</u>	<u>0.488882</u>	<u>8.914772</u>	<u>3.653334</u>	<u>2.440175</u>	<u>0.392769</u>	<u>10.49751</u>
2.80	0.488167	8.979988	3.663550	2.451172	0.389465	10.56938
2.81	0.487460	9.045439	3.673714	2.462205	0.386184	10.64149
2.82	0.486758	9.111122	3.683825	2.473277	0.382928	10.71388
2.83	0.486064	9.177038	3.693885	2.484387	0.379695	10.78651
<u>2.84</u>	<u>0.485376</u>	<u>9.243188</u>	<u>3.703892</u>	<u>2.495533</u>	<u>0.376487</u>	<u>10.85941</u>
2.85	0.484694	9.309571	3.713849	2.506718	0.373302	10.93257
2.86	0.484019	9.376188	3.723754	2.517940	0.370141	11.00599
2.87	0.483350	9.443038	3.733607	2.529200	0.367004	11.07966
2.88	0.482687	9.510121	3.743409	2.540497	0.363890	11.15359
<u>2.89</u>	<u>0.482030</u>	<u>9.577437</u>	<u>3.753161</u>	<u>2.551832</u>	<u>0.360800</u>	<u>11.22778</u>
2.90	0.481380	9.644987	3.762862	2.563205	0.357734	11.30223
2.91	0.480735	9.712770	3.772512	2.574616	0.354690	11.37694
2.92	0.480096	9.780787	3.782114	2.586064	0.351671	11.45191
2.93	0.479463	9.849037	3.791664	2.597550	0.348674	11.52713
<u>2.94</u>	<u>0.478836</u>	<u>9.917521</u>	<u>3.801165</u>	<u>2.609073</u>	<u>0.345701</u>	<u>11.60262</u>
2.95	0.478215	9.986237	3.810617	2.620635	0.342751	11.67836
2.96	0.477599	10.05519	3.820019	2.632235	0.339824	11.75436
2.97	0.476989	10.12437	3.829373	2.643871	0.336920	11.83062
2.98	0.476384	10.19379	3.838678	2.655547	0.334039	11.90714
<u>2.99</u>	<u>0.475785</u>	<u>10.26344</u>	<u>3.847934</u>	<u>2.667259</u>	<u>0.331180</u>	<u>11.98391</u>
3.00	0.475191	10.33332	3.857141	2.679010	0.328344	12.06095
3.50	0.451154	14.12500	4.260870	3.315050	0.212948	16.24200
4.00	0.434959	18.50000	4.571429	4.046875	0.138756	21.06808
4.50	0.423552	23.45833	4.811882	4.875085	0.091698	26.53867
<u>5.00</u>	<u>0.415227</u>	<u>29.00000</u>	<u>5.000001</u>	<u>5.799999</u>	<u>0.061716</u>	<u>32.65347</u>
6.00	0.404162	41.83333	5.268293	7.940585	0.029651	46.81520
7.00	0.397360	57.00000	5.444445	10.46939	0.015351	63.55261
8.00	0.392890	74.50000	5.565218	13.38672	849E-05	82.86546
9.00	0.389799	94.33334	5.651164	16.69273	496E-05	104.7536
<u>10.00</u>	<u>0.387575</u>	<u>116.5000</u>	<u>5.714287</u>	<u>20.38750</u>	<u>304E-05</u>	<u>129.2169</u>
$\infty$	0.37796	$\infty$	6.0000	$\infty$	0	$\infty$