

Original data

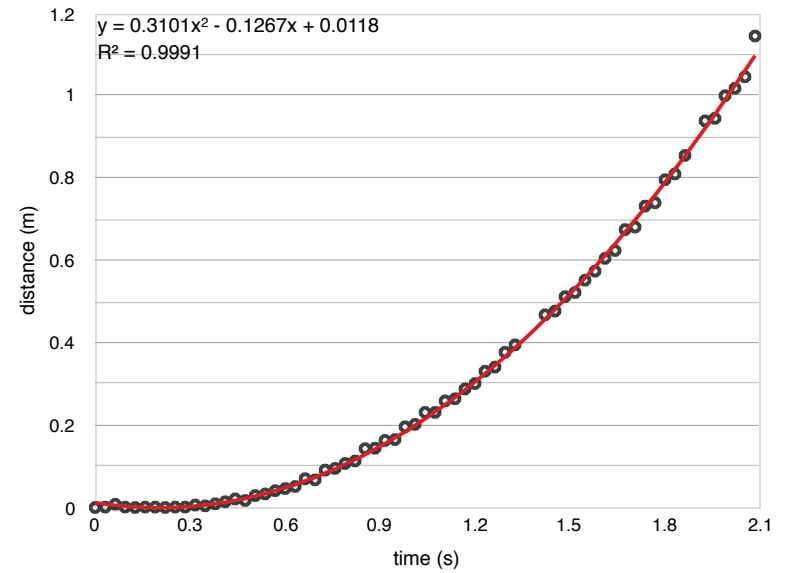
QUANTUS		Distance-time measurements
Computed by	QUANTUS EDISON	
Version	0.1.0	
Frequency (Hz)	32	
Relative humidity (fraction)	0.66	
Pressure (Pa)	101325	
time (s)	displacement (m)	
0.000007	0.041	
0.031336	0.041	
0.062957	0.041	
0.094576	0.040	
0.125893	0.040	
0.157541	0.041	
0.189134	0.041	
0.220763	0.041	
0.252332	0.041	
0.283940	0.041	
0.315254	0.041	
0.346861	0.041	
0.378476	0.041	
0.410108	0.041	
0.441734	0.041	
0.473360	0.041	
0.504674	0.041	
0.536260	0.040	
0.567894	0.041	
0.599362	0.040	
0.630978	0.041	
0.662600	0.048	
0.693914	0.041	
0.725551	0.040	
0.757172	0.041	
0.788825	0.041	
0.820446	0.040	
0.852066	0.041	
0.883826	0.041	
0.915462	0.046	

Shifted data

The points where the cylinder is accelerating is isolated from the original data. These data were then shifted such that time starts at 0 seconds and displacement starts at 0 metres. Three outlier data points were also removed.

shifted time (s)	shifted displacement (m)	
0.000000	0.000	
0.031616	0.001	
0.063238	0.008	
0.094552	0.001	
0.126189	0.000	
0.157810	0.001	
0.189463	0.001	
0.221084	0.000	
0.252704	0.001	
0.284464	0.001	
0.316100	0.006	
0.347700	0.004	
0.379315	0.009	
0.410905	0.014	
0.442606	0.021	
0.474260	0.017	
0.505901	0.029	
0.537521	0.033	
0.569141	0.041	
0.600726	0.046	
0.632361	0.051	
0.663662	0.070	
0.695271	0.067	
0.726885	0.091	
0.758508	0.095	
0.790127	0.107	
0.821718	0.113	
0.853173	0.143	
0.884836	0.144	
0.916429	0.163	
0.948059	0.165	
0.979680	0.196	
1.011313	0.202	

Displacement with respect to time of a cylinder rolling down an inclined plane



0.947062	0.044
0.978677	0.049
1.010267	0.054
1.041968	0.061
1.073622	0.057
1.105263	0.069
1.136883	0.073
1.168503	0.081
1.200088	0.086
1.231723	0.091
1.263024	0.110
1.294633	0.107
1.326247	0.131
1.357870	0.135
1.389489	0.147
1.421080	0.153
1.452535	0.183
1.484198	0.184
1.515791	0.203
1.547421	0.205
1.579042	0.236
1.610675	0.242
1.642514	0.271
1.674140	0.271
1.705747	0.299
1.737095	0.304
1.768732	0.328
1.800368	0.341
1.831879	0.371
1.863513	0.381
1.895105	0.417
1.926740	0.435
1.958412	1.406
1.990014	1.405
2.021736	0.508
2.053376	0.517
2.084969	0.552
2.116596	0.562

1.043152	0.231
1.074778	0.231
1.106385	0.259
1.137733	0.264
1.169370	0.288
1.201006	0.301
1.232517	0.331
1.264151	0.341
1.295743	0.377
1.327378	0.395
1.422374	0.468
1.454014	0.477
1.485607	0.512
1.517234	0.522
1.548857	0.552
1.580476	0.574
1.612238	0.605
1.643857	0.624
1.675497	0.675
1.707133	0.681
1.738809	0.732
1.770427	0.740
1.801743	0.796
1.833296	0.810
1.864889	0.855
1.928233	0.939
1.959851	0.945
1.991416	1.000
2.023083	1.018
2.054710	1.046
2.086335	1.145

2.148219	0.592
2.179838	0.614
2.211600	0.645
2.243219	0.664
2.274859	0.715
2.306495	0.721
2.338171	0.772
2.369789	0.780
2.401105	0.836
2.432658	0.850
2.464251	0.895
2.495888	0.766
2.527595	0.979
2.559213	0.985
2.590778	1.040
2.622445	1.058
2.654072	1.086
2.685697	1.185
2.717172	1.167
2.748780	1.401
2.780479	1.154
2.812106	1.400
2.843454	1.068
2.874917	1.210
2.906528	1.122
2.938196	1.176
2.969816	1.108
3.001429	1.121
3.033064	1.158
3.064521	0.885
3.096118	1.398
3.127745	1.392
3.159194	1.154
3.190519	1.139
3.222076	1.142
3.253735	1.155
3.285360	1.174
3.316834	1.157

3.348443	1.155
3.379800	1.148
3.411401	1.150
3.443151	0.962
3.474682	1.150
3.506289	1.132
3.537917	1.152
3.569593	1.144
3.601246	1.123
3.632856	1.141
3.664478	1.063
3.696098	1.129
3.727767	0.932
3.759085	0.929
3.790707	0.952
3.822327	1.145
3.853954	1.075
3.885585	1.141
3.917240	1.124
3.948657	1.110
3.980272	1.158
4.011872	1.057
4.043517	1.071
4.075116	1.079
4.107189	1.062
4.138631	1.085
4.170280	1.085
4.201903	1.133
4.237359	1.140
4.268680	1.072
4.300325	1.108
4.331945	1.073
4.366843	1.073
4.398254	1.089
4.429702	1.086
4.461316	1.101
4.492943	1.061
4.524401	1.107

4.555978	1.128
4.587675	1.140
4.619283	1.159
4.650915	0.970
4.682376	1.138
4.714006	1.111
4.745631	1.120