	TEAM: 2	
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Smartphone- accelerations into physics situations	Italy	Anita Donati , Anna Mosconi, Jasmine Afruni
EXPERIMENT: Phone in car tire from a slope		

1. ORIENTATION

We will put a phone in a car tire to see what happens with the acceleration when the tire rolls down a slope.

1.1. Research question:

Is the acceleration of a rolling tire constant?

Sub-questions:

What happens with the acceleration if we change the distance that the tire needs to roll?

1.2. Hypothesis

The acceleration will be negative and constant, but the velocity will decrease because the tire will slow down due to the friction with the surface.

2. PREPARATION

2.1. Material:

A car tire

A phone with phyphox attached in the tire

A flat surface

A slope to have equal initial speed every measurement

A ruler

Method:

- Put a phone with phyphox in a tire (experiment with the roll)
- Using Phyphox:
 - press on the three points in the right upper corner and press on timed measurement.
 - Delayed start 10s and duration experiment 15s. (check when you are doing the experiment)
 - Press on start button and start rolling the tire
- let it roll down from a slope and began measuring the speed (phyphox measures the speed)
- Then change the time so for example from 5,10 or 15 seconds (so measure 3 times)
- measure again
- Measure every time 3 times to make the measurements more accurate, do 3 different times
- Make sure you know the circumference of your tire.
- To let the tire have the same initial speed, let it roll from the same slope to the flat surface during different times
- Export the data
- Now calculate the acceleration with the velocity

3. DATA ANALYSIS and DISCUSSION

3.1. Observations and Measurements:

First measurement with 5 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
0,112889	0,109487	0,374314
0,15281	0,068748	0,235037
0,193441	0,016395	0,056053
0,232817	-0,01327	-0,04535
0,2728	-0,06794	-0,23228
0,31286	-0,11082	-0,37888
0,352819	-0,12958	-0,44302
0,392654	-0,15853	-0,54198
0,432764	-0,22143	-0,75701
0,472998	-0,25555	-0,87368
0,512935	-0,27324	-0,93416
0,552888	-0,28271	-0,96654
0,595403	-0,29951	-1,02396
0,632892	-0,29969	-1,02457
0,672626	-0,30004	-1,02579
0,714872	-0,28593	-0,97753
0,753075	-0,27288	-0,93294
0,793046	-0,13334	-0,45585
0,832803	-0,20034	-0,68493
0,872818	-0,14549	-0,49739
0,912817	-0,09796	-0,3349
0,952755	-0,03274	-0,11193
0,992646	0,004067	0,013903
1,032831	0,020505	0,070103
1,073121	0,046413	0,158678
1,112614	0,057313	0,195941
1,152756	0,075002	0,256417
1,193312	0,088045	0,30101
1,233517	0,06035	0,206326
1,272931	0,080005	0,273521

1,313191	0,07929	0,271078
1,352823	0,055705	0,190443
1,392787	0,037122	0,126913
1,43271	-0,0272	-0,093
1,472761	-0,06258	-0,21395
1,512812	-0,11869	-0,40576
1,552747	-0,1521	-0,51999
1,592895	-0,08438	-0,28848
1,632825	-0,18319	-0,62628
1,672628	-0,23	-0,78633
1,712807	-0,2593	-0,88651
1,752893	-0,23536	-0,80466
1,792779	-0,22696	-0,77595
1,832797	-0,21946	-0,75029
1,873246	-0,20409	-0,69775
1,912789	-0,17711	-0,60551
1,952915	-0,13816	-0,47235
1,992628	-0,12405	-0,42409
2,033776	-0,08599	-0,29397
2,072918	-0,04293	-0,14675
2,112818	-0,0138	-0,04718
2,15274	0,007819	0,026731
2,194095	0,040338	0,137909
2,23283	0,085723	0,293069
2,272768	0,121458	0,415242
2,312971	0,110916	0,379201
2,353036	0,124674	0,426237
2,392717	0,143972	0,492211
2,432834	0,112167	0,383477
2,472866	0,09287	0,317503
2,513205	0,063924	0,218543
2,553078	0,013715	0,04689
2,592712	-0,0306	-0,1046

Experiment

2,632829	-0,07723	-0,26404
2,673531	-0,12065	-0,41248
2,712803	-0,15478	-0,52916
2,753464	-0,16407	-0,56092
2,792805	-0,21464	-0,7338
2,83282	-0,24215	-0,82787
2,873224	-0,25591	-0,87491
2,912829	-0,26877	-0,91889
2,953234	-0,26145	-0,89384
2,992856	-0,2602	-0,88957
3,032985	-0,22679	-0,77533
3,073053	-0,18051	-0,61712
3,112975	-0,16961	-0,57986
3,152628	-0,16139	-0,55176
3,192821	-0,06258	-0,21395
3,233039	0,001029	0,003519
3,272806	0,007104	0,024288
3,312932	0,009427	0,032229
3,353001	0,030154	0,10309
3,392801	0,056062	0,191665
3,432891	0,038194	0,130579
3,472836	-0,09349	-0,31963
3,512987	0,014251	0,048723
3,552856	2,970659	10,1561
3,592812	-0,96115	-3,28599
3,632961	-1,19397	-4,08195
3,67269	-1,00957	-3,45154
3,712643	-0,08259	-0,28237
3,753311	0,15773	0,539247
3,79283	0,225806	0,771987
3,832615	0,306569	1,048098
3,872918	0,204901	0,700516
3,912959	0,536706	1,834893

Experiment

3,9528	0,18739	0,640651
3,994832	0,139505	0,476939
4,033031	0,10234	0,349879
4,072724	0,045163	0,154402
4,112622	0,05499	0,188
4,152884	0,034978	0,119583
4,195027	0,024257	0,082931
4,232885	-0,06919	-0,23655
4,272763	0,013894	0,047501
4,313021	0,021041	0,071935
4,352858	0,04963	0,169674
4,392642	0,074109	0,253362
4,432915	0,175776	0,600945
4,472931	0,180958	0,61866
4,512818	0,214013	0,73167
4,552715	0,233311	0,797643
4,594006	0,233132	0,797033
4,632872	0,27262	0,932034
4,672764	0,278338	0,951581
4,713956	0,365532	1,249684
4,75263	0,149153	0,509926
4,7929	0,311036	1,06337
4,832818	0,241887	0,826965
4,872968	0,23617	0,807417
4,912807	0,185961	0,635764
4,95352	0,17256	0,589949
4,993731	0,073751	0,252141
5,032849	0,04963	0,169674

Second measurement with 5 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
0,112889	0,109487	0,374314

0,15281	0,068748	0,235037
0,193441	0,016395	0,056053
0,232817	-0,01327	-0,04535
0,2728	-0,06794	-0,23228
0,31286	-0,11082	-0,37888
0,352819	-0,12958	-0,44302
0,392654	-0,15853	-0,54198
0,432764	-0,22143	-0,75701
0,472998	-0,25555	-0,87368
0,512935	-0,27324	-0,93416
0,552888	-0,28271	-0,96654
0,595403	-0,29951	-1,02396
0,632892	-0,29969	-1,02457
0,672626	-0,30004	-1,02579
0,714872	-0,28593	-0,97753
0,753075	-0,27288	-0,93294
0,793046	-0,13334	-0,45585
0,832803	-0,20034	-0,68493
0,872818	-0,14549	-0,49739
0,912817	-0,09796	-0,3349
0,952755	-0,03274	-0,11193
0,992646	0,004067	0,013903
1,032831	0,020505	0,070103
1,073121	0,046413	0,158678
1,112614	0,057313	0,195941
1,152756	0,075002	0,256417
1,193312	0,088045	0,30101
1,233517	0,06035	0,206326
1,272931	0,080005	0,273521
1,313191	0,07929	0,271078
1,352823	0,055705	0,190443
1,392787	0,037122	0,126913
1,43271	-0,0272	-0,093

Experiment

1,472761	-0,06258	-0,21395
1,512812	-0,11869	-0,40576
1,552747	-0,1521	-0,51999
1,592895	-0,08438	-0,28848
1,632825	-0,18319	-0,62628
1,672628	-0,23	-0,78633
1,712807	-0,2593	-0,88651
1,752893	-0,23536	-0,80466
1,792779	-0,22696	-0,77595
1,832797	-0,21946	-0,75029
1,873246	-0,20409	-0,69775
1,912789	-0,17711	-0,60551
1,952915	-0,13816	-0,47235
1,992628	-0,12405	-0,42409
2,033776	-0,08599	-0,29397
2,072918	-0,04293	-0,14675
2,112818	-0,0138	-0,04718
2,15274	0,007819	0,026731
2,194095	0,040338	0,137909
2,23283	0,085723	0,293069
2,272768	0,121458	0,415242
2,312971	0,110916	0,379201
2,353036	0,124674	0,426237
2,392717	0,143972	0,492211
2,432834	0,112167	0,383477
2,472866	0,09287	0,317503
2,513205	0,063924	0,218543
2,553078	0,013715	0,04689
2,592712	-0,0306	-0,1046
2,632829	-0,07723	-0,26404
2,673531	-0,12065	-0,41248
2,712803	-0,15478	-0,52916
2,753464	-0,16407	-0,56092

Experiment

2,792805	-0,21464	-0,7338
2,83282	-0,24215	-0,82787
2,873224	-0,25591	-0,87491
2,912829	-0,26877	-0,91889
2,953234	-0,26145	-0,89384
2,992856	-0,2602	-0,88957
3,032985	-0,22679	-0,77533
3,073053	-0,18051	-0,61712
3,112975	-0,16961	-0,57986
3,152628	-0,16139	-0,55176
3,192821	-0,06258	-0,21395
3,233039	0,001029	0,003519
3,272806	0,007104	0,024288
3,312932	0,009427	0,032229
3,353001	0,030154	0,10309
3,392801	0,056062	0,191665
3,432891	0,038194	0,130579
3,472836	-0,09349	-0,31963
3,512987	0,014251	0,048723
3,552856	2,970659	10,1561
3,592812	-0,96115	-3,28599
3,632961	-1,19397	-4,08195
3,67269	-1,00957	-3,45154
3,712643	-0,08259	-0,28237
3,753311	0,15773	0,539247
3,79283	0,225806	0,771987
3,832615	0,306569	1,048098
3,872918	0,204901	0,700516
3,912959	0,536706	1,834893
3,9528	0,18739	0,640651
3,994832	0,139505	0,476939
4,033031	0,10234	0,349879
4,072724	0,045163	0,154402

Experiment

4,112622	0,05499	0,188
4,152884	0,034978	0,119583
4,195027	0,024257	0,082931
4,232885	-0,06919	-0,23655
4,272763	0,013894	0,047501
4,313021	0,021041	0,071935
4,352858	0,04963	0,169674
4,392642	0,074109	0,253362
4,432915	0,175776	0,600945
4,472931	0,180958	0,61866
4,512818	0,214013	0,73167
4,552715	0,233311	0,797643
4,594006	0,233132	0,797033
4,632872	0,27262	0,932034
4,672764	0,278338	0,951581
4,713956	0,365532	1,249684
4,75263	0,149153	0,509926
4,7929	0,311036	1,06337
4,832818	0,241887	0,826965
4,872968	0,23617	0,807417
4,912807	0,185961	0,635764
4,95352	0,17256	0,589949
4,993731	0,073751	0,252141
5,032849	0,04963	0,169674

Third measurement with 5 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
0,112889	0,109487	0,374314
0,15281	0,068748	0,235037
0,193441	0,016395	0,056053
0,232817	-0,01327	-0,04535
0,2728	-0,06794	-0,23228

0,31286	-0,11082	-0,37888
0,352819	-0,12958	-0,44302
0,392654	-0,15853	-0,54198
0,432764	-0,22143	-0,75701
0,472998	-0,25555	-0,87368
0,512935	-0,27324	-0,93416
0,552888	-0,28271	-0,96654
0,595403	-0,29951	-1,02396
0,632892	-0,29969	-1,02457
0,672626	-0,30004	-1,02579
0,714872	-0,28593	-0,97753
0,753075	-0,27288	-0,93294
0,793046	-0,13334	-0,45585
0,832803	-0,20034	-0,68493
0,872818	-0,14549	-0,49739
0,912817	-0,09796	-0,3349
0,952755	-0,03274	-0,11193
0,992646	0,004067	0,013903
1,032831	0,020505	0,070103
1,073121	0,046413	0,158678
1,112614	0,057313	0,195941
1,152756	0,075002	0,256417
1,193312	0,088045	0,30101
1,233517	0,06035	0,206326
1,272931	0,080005	0,273521
1,313191	0,07929	0,271078
1,352823	0,055705	0,190443
1,392787	0,037122	0,126913
1,43271	-0,0272	-0,093
1,472761	-0,06258	-0,21395
1,512812	-0,11869	-0,40576
1,552747	-0,1521	-0,51999
1,592895	-0,08438	-0,28848

Experiment

1,632825	-0,18319	-0,62628
1,672628	-0,23	-0,78633
1,712807	-0,2593	-0,88651
1,752893	-0,23536	-0,80466
1,792779	-0,22696	-0,77595
1,832797	-0,21946	-0,75029
1,873246	-0,20409	-0,69775
1,912789	-0,17711	-0,60551
1,952915	-0,13816	-0,47235
1,992628	-0,12405	-0,42409
2,033776	-0,08599	-0,29397
2,072918	-0,04293	-0,14675
2,112818	-0,0138	-0,04718
2,15274	0,007819	0,026731
2,194095	0,040338	0,137909
2,23283	0,085723	0,293069
2,272768	0,121458	0,415242
2,312971	0,110916	0,379201
2,353036	0,124674	0,426237
2,392717	0,143972	0,492211
2,432834	0,112167	0,383477
2,472866	0,09287	0,317503
2,513205	0,063924	0,218543
2,553078	0,013715	0,04689
2,592712	-0,0306	-0,1046
2,632829	-0,07723	-0,26404
2,673531	-0,12065	-0,41248
2,712803	-0,15478	-0,52916
2,753464	-0,16407	-0,56092
2,792805	-0,21464	-0,7338
2,83282	-0,24215	-0,82787
2,873224	-0,25591	-0,87491
2,912829	-0,26877	-0,91889

Experiment

2,953234	-0,26145	-0,89384
2,992856	-0,2602	-0,88957
3,032985	-0,22679	-0,77533
3,073053	-0,18051	-0,61712
3,112975	-0,16961	-0,57986
3,152628	-0,16139	-0,55176
3,192821	-0,06258	-0,21395
3,233039	0,001029	0,003519
3,272806	0,007104	0,024288
3,312932	0,009427	0,032229
3,353001	0,030154	0,10309
3,392801	0,056062	0,191665
3,432891	0,038194	0,130579
3,472836	-0,09349	-0,31963
3,512987	0,014251	0,048723
3,552856	2,970659	10,1561
3,592812	-0,96115	-3,28599
3,632961	-1,19397	-4,08195
3,67269	-1,00957	-3,45154
3,712643	-0,08259	-0,28237
3,753311	0,15773	0,539247
3,79283	0,225806	0,771987
3,832615	0,306569	1,048098
3,872918	0,204901	0,700516
3,912959	0,536706	1,834893
3,9528	0,18739	0,640651
3,994832	0,139505	0,476939
4,033031	0,10234	0,349879
4,072724	0,045163	0,154402
4,112622	0,05499	0,188
4,152884	0,034978	0,119583
4,195027	0,024257	0,082931
4,232885	-0,06919	-0,23655

Experiment

4,272763	0,013894	0,047501
4,313021	0,021041	0,071935
4,352858	0,04963	0,169674
4,392642	0,074109	0,253362
4,432915	0,175776	0,600945
4,472931	0,180958	0,61866
4,512818	0,214013	0,73167
4,552715	0,233311	0,797643
4,594006	0,233132	0,797033
4,632872	0,27262	0,932034
4,672764	0,278338	0,951581
4,713956	0,365532	1,249684
4,75263	0,149153	0,509926
4,7929	0,311036	1,06337
4,832818	0,241887	0,826965
4,872968	0,23617	0,807417
4,912807	0,185961	0,635764
4,95352	0,17256	0,589949
4,993731	0,073751	0,252141
5,032849	0,04963	0,169674

First measurement with 10 seconds, start point is 5 seconds and we measured 10 seconds

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
5.195612	0.015681	-1.30434
5.233472	-0.38152	-1.41858
5.273721	-0.41493	-1.49371
5.313501	-0.43691	-1.53586
5.353555	-0.44924	-1.6281
5.393691	-0.47622	-1.8022
5.434669	-0.52714	-1.55174

5.473386	-0.45389	-1.50288
5.513815	-0.43959	-1.52548
5.553513	-0.4462	-1.45523
5.594216	-0.42565	-1.27747
5.633486	-0.37366	-1.05511
5.673591	-0.30862	-0.90239
5.713536	-0.26395	-0.50411
5.753369	-0.14745	-0.23838
5.794284	-0.06973	-0.22617
5.833519	-0.06615	0.063383
5.874064	0.01854	0.409744
5.913369	0.11985	0.746331
5.95344	0.218302	0.947305
5.993481	0.277087	1.341924
6.033558	0.392513	1.431721
6.073594	0.418779	1.377965
6.113414	0.403055	1.272897
6.153399	0.372322	1.393848
6.193532	0.4077	1.348644
6.234962	0.394478	1.16966
6.273586	0.342126	1.147058
6.313433	0.335515	1.117126
6.353562	0.326759	0.963799
6.393375	0.281911	0.804974
6.433644	0.235455	0.509926

Experiment

6.473495	0.149153	0.176393
6.513571	0.051595	-0.18768
6.553997	-0.0549	-0.83398
6.593779	-0.24394	-0.60551
6.63362	-0.17711	-1.13636
6.673372	-0.33238	-0.97936
6.713686	-0.28646	-1.3074
6.753687	-0.38241	-1.36482
6.795121	-0.39921	-1.48149
6.833935	-0.43334	-1.51693
6.87365	-0.4437	-1.49982
6.913521	-0.4387	-1.44118
6.953782	-0.42154	-1.39842
6.993512	-0.40904	-1.22921
7.033523	-0.35954	-1.13452
7.073554	-0.33185	-0.98608
7.113657	-0.28843	-0.92439
7.153727	-0.27038	-0.80466
7.195099	-0.23536	-0.59696
7.233466	-0.17461	-0.41065
7.273626	-0.12011	-0.08872
7.313578	-0.02595	0.17395
7.353626	0.05088	0.279019
7.395529	0.081613	0.492822
7.433404	0.14415	0.440287

Experiment

7.47469	0.128784	0.693185
7.513377	0.202757	0.955247
7.553405	0.27941	1.008392
7.595366	0.294955	0.975405
7.633535	0.285306	1.032216
7.673453	0.301923	0.891717
7.713883	0.260827	0.817191
7.754388	0.239028	0.701127
7.793584	0.20508	0.525198
7.833557	0.15362	0.377979
7.873541	0.110559	0.261915
7.914513	0.07661	0.168452
7.953493	0.049272	0.021845
7.993572	0.00639	-0.1266
8.03354	-0.03703	-0.43569
8.073592	-0.12744	-0.64583
8.113576	-0.18891	-0.80405
8.153948	-0.23518	-0.99219
8.193895	-0.29022	-1.12231
8.233577	-0.32827	-1.95736
8.274023	-0.57253	-1.14918
8.314159	-0.33614	-1.15957
8.353401	-0.33917	-1.11986
8.393529	-0.32756	-1.26891
8.433787	-0.37116	-1.0826

Experiment

8.474357	-0.31666	-1.04778
8.513498	-0.30648	-0.89751
8.553599	-0.26252	-0.73624
8.593485	-0.21535	-0.59696
8.633414	-0.17461	-0.42775
8.673513	-0.12512	-0.46502
8.713363	-0.13602	0.126302
8.753535	0.036943	-9.19917
8.793691	-2.69076	-7.09107
8.833527	-2.07414	-1.7741
8.874274	-0.51892	3.858078
8.91348	1.128488	11.07301
8.953367	3.238855	-0.37766
8.993833	-0.11047	-0.99097
9.033604	-0.28986	-1.58046
9.07349	-0.46228	-2.63359
9.113354	-0.77032	-0.49311
9.155234	-0.14424	-1.01785
9.193857	-0.29772	-4.34829
9.233413	-1.27187	-2.32205
9.273366	-0.6792	-1.63788
9.313721	-0.47908	-1.57374
9.353884	-0.46032	-1.78204
9.393949	-0.52125	-1.15529
9.433628	-0.33792	-1.70446

Experiment

9.473519	-0.49855	-0.80832
9.513507	-0.23643	-0.9366
9.553545	-0.27396	0.029786
9.593403	0.008712	-1.52853
9.633457	-0.4471	-1.41308
9.675302	-0.41333	-1.37276
9.713437	-0.40153	-2.41978
9.753534	-0.70779	-1.13758
9.793503	-0.33274	-2.14489
9.834172	-0.62738	-0.7173
9.87408	-0.20981	2.744471
9.913466	0.802758	8.135967
9.953397	2.37977	-7.36352
9.993362	-2.15383	0.382255
10.03367	0.11181	-2.07159
10.07337	-0.60594	-3.03615
10.11378	-0.88807	-3.20963
10.15365	-0.93882	-2.09969
10.27726	-0.61416	0.348047
10.31738	0.101804	0.455559
10.35745	0.133251	0.330332
10.3974	0.096622	1.4305
10.43729	0.418421	0.489767
10.4772	0.143257	0.624158
10.51731	0.182566	0.506261

Experiment

10.55729	0.148081	0.440287
10.59721	0.128784	0.415242
10.6373	0.121458	0.366373
10.67762	0.107164	0.252141
10.71723	0.073751	0.128135
10.75753	0.03748	0.091483
10.79719	0.026759	-0.08445
10.83745	-0.0247	-0.13087
10.87732	-0.03828	-0.37155
10.91733	-0.10868	-0.35323
10.9573	-0.10332	-0.30986
10.99731	-0.09063	-0.45463
11.03744	-0.13298	-0.48029
11.0773	-0.14048	-0.57558
11.11731	-0.16836	-0.51083
11.15745	-0.14942	-0.43264
11.19761	-0.12655	-0.15408
11.2373	-0.04507	-0.37705
11.27749	-0.11029	-0.10949
11.31733	-0.03203	-0.04718
11.35719	-0.0138	0.167841
11.3981	0.049094	0.384088
11.43858	0.112346	0.59056
11.47742	0.172739	0.595447
11.51743	0.174168	0.690131

Experiment

11.55722	0.201863	0.770765
11.59764	0.225449	0.88683
11.6376	0.259398	0.819024
11.67731	0.239564	0.868504
11.7175	0.254037	0.748774
11.75746	0.219016	0.628434
11.79751	0.183817	0.564293
11.83729	0.165056	0.431735
11.87735	0.126283	0.208769
11.91746	0.061065	0.016347
11.95722	0.004781	-0.07956
11.99718	-0.02327	-0.26282
12.03719	-0.07687	-0.33857
12.0772	-0.09903	-0.32818
12.11745	-0.09599	-0.4754
12.15741	-0.13905	-0.47906
12.19732	-0.14013	-0.4473
12.23744	-0.13084	-0.41004
12.27731	-0.11994	-0.35506
12.3172	-0.10385	-0.23044
12.35737	-0.0674	-0.11682
12.39734	-0.03417	-0.11682
12.43728	-0.03417	0.099424
12.4774	0.029082	0.258249
12.51782	0.075538	0.337662

Experiment

12.55732	0.098766	0.384088
12.59738	0.112346	0.468387
12.63736	0.137003	0.54108
12.67718	0.158266	0.543523
12.71894	0.158981	0.558184
12.75726	0.163269	0.278408
12.79721	0.081434	0.501985
12.83777	0.14683	0.04017
12.87719	0.01175	0.445174
12.91744	0.130213	0.272299
12.95729	0.079648	0.100646
12.99732	0.029439	-0.06551
13.03722	-0.01916	-0.10888
13.07728	-0.03185	-0.15775
13.11731	-0.04614	-0.22189
13.15729	-0.0649	-0.29764
13.19721	-0.08706	-0.37827
13.2372	-0.11064	-0.4082
13.27724	-0.1194	-0.3801
13.31736	-0.11118	-0.33062
13.35753	-0.09671	-0.27381
13.39739	-0.08009	-0.25793
13.4374	-0.07545	-0.0765
13.4775	-0.02238	0.079877
13.51753	0.023364	0.243589

Experiment

13.55792	0.07125	0.578343
13.5974	0.169165	-0.08872
13.63732	-0.02595	0.767711
13.67756	0.224555	0.75977
13.71749	0.222233	0.779928
13.75737	0.228129	0.759159
13.79755	0.222054	0.782372
13.8375	0.228844	0.727394
13.87793	0.212763	0.586284
13.91718	0.171488	0.471441
13.95734	0.137897	0.335218
13.9972	0.098051	-1.55052
14.03719	-0.45353	-0.96592
14.0777	-0.28253	0.424405
14.11748	0.124138	0.436011
14.15787	0.127533	0.260082
14.19739	0.076074	0.584451
14.23733	0.170952	0.354155
14.27754	0.10359	0.507482
14.31743	0.148439	1.432943
14.35758	0.419136	0.423794
14.39736	0.12396	0.647981
14.43717	0.189535	0.338273
14.47759	0.098945	0.187389
14.51734	0.054811	0.310784

Experiment

14.55718	0.090904	-0.01297
14.59745	-0.0038	0.082931
14.63729	0.024257	0.079266
14.67732	0.023185	-0.0258
14.71739	-0.00755	-0.11438
14.75717	-0.03346	-0.18157
14.79732	-0.05311	-0.19013
14.83774	-0.05561	-0.39354
14.87731	-0.11511	-0.21273
14.91736	-0.06222	-0.16997
14.9574	-0.04972	-0.12843
14.99718	-0.03757	-0.09666
15.03723	-0.02827	0.031618

Second measurement 10 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
15.35712	0.143793	0.341327
15.39703	0.099838	0.266191
15.43799	0.077861	0.101868
15.47704	0.029796	0.014514
15.51708	0.004245	-0.07712
15.55687	-0.02256	-0.20845
15.59701	-0.06097	-0.39965
15.63702	-0.1169	-0.70814
15.677	-0.20713	-0.57008

15.71707	-0.16675	-0.74662
15.75723	-0.21839	-0.96654
15.79712	-0.28271	-0.97142
15.837	-0.28414	-0.95798
15.87698	-0.28021	-0.88651
15.91723	-0.2593	-1.04656
15.95701	-0.30612	-0.56947
15.99686	-0.16657	-0.74113
16.03704	-0.21678	-0.49983
16.0771	-0.1462	-0.32635
16.11708	-0.09546	-0.03985
16.15687	-0.01166	-0.04107
16.19713	-0.01201	0.155013
16.23703	0.045341	0.225874
16.27695	0.066068	0.332775
16.31694	0.097337	0.399359
16.35833	0.116813	0.439676
16.39702	0.128605	0.49893
16.43895	0.145937	0.39997
16.477	0.116991	0.460446
16.51725	0.13468	0.397527
16.55753	0.116277	0.333386
16.597	0.097515	0.275354
16.63779	0.080541	0.037116
16.67688	0.010856	-0.05024

Experiment

16.71731	-0.01469	-0.29092
16.75713	-0.08509	-0.45952
16.79718	-0.13441	-0.27504
16.8371	-0.08045	-0.45097
16.87691	-0.13191	-0.46257
16.91696	-0.1353	-0.47968
16.95712	-0.14031	-0.44974
16.997	-0.13155	-0.42836
17.03699	-0.1253	-0.41859
17.07699	-0.12244	-0.26648
17.11699	-0.07795	-0.29275
17.15699	-0.08563	-0.40454
17.197	-0.11833	-0.1608
17.23697	-0.04704	0.007184
17.27701	0.002101	0.042614
17.3171	0.012465	0.187389
17.35699	0.054811	0.140352
17.39733	0.041053	0.248476
17.43697	0.072679	0.302232
17.47696	0.088403	0.464111
17.51702	0.135752	0.260693
17.55701	0.076253	0.319947
17.59702	0.093584	0.261304
17.63701	0.076431	0.088429
17.67697	0.025865	0.028564

Experiment

17.7174	0.008355	-0.16691
17.75701	-0.04882	-0.14859
17.79689	-0.04346	-0.32879
17.83699	-0.09617	-0.36178
17.87708	-0.10582	-0.42958
17.91703	-0.12565	-0.45646
17.95698	-0.13352	-0.66355
17.99702	-0.19409	-0.64339
18.03698	-0.18819	-0.73318
18.07706	-0.21446	-0.64644
18.11863	-0.18908	-0.60918
18.15703	-0.17818	-0.45158
18.19704	-0.13209	-0.30436
18.23711	-0.08902	-0.11743
18.27699	-0.03435	0.239313
18.31702	0.069999	0.08904
18.35696	0.026044	0.437233
18.39693	0.127891	0.461057
18.4371	0.134859	0.578954
18.47686	0.169344	0.593004
18.51699	0.173454	0.525198
18.55835	0.15362	0.551465
18.59704	0.161303	0.388975
18.63713	0.113775	0.458002
18.67686	0.133966	-0.81015

Experiment

18.71687	-0.23697	0.271078
18.75704	0.07929	3.236217
18.79748	0.946594	0.946694
18.83698	0.276908	-0.217
18.87686	-0.06347	-0.31169
18.91701	-0.09117	-0.63972
18.95708	-0.18712	-0.48151
18.99699	-0.14084	-0.14798
19.03704	-0.04328	-0.29214
19.07686	-0.08545	-0.19379
19.11854	-0.05668	-0.05818
19.15687	-0.01702	0.075601
19.19728	0.022113	-0.21945
19.23717	-0.06419	-0.00381
19.27688	-0.00111	-0.06184
19.317	-0.01809	0.020623
19.35699	0.006032	0.006573
19.39704	0.001923	-0.00198
19.43688	-0.00058	0.038949
19.47688	0.011393	-0.02031
19.51717	-0.00594	-0.05329
19.55713	-0.01559	-0.19746
19.59698	-0.05776	-0.16386
19.63694	-0.04793	-0.1944
19.67692	-0.05686	-0.35017

Experiment

19.71715	-0.10243	-0.34834
19.75709	-0.10189	-0.2842
19.79704	-0.08313	-0.29092
19.83725	-0.08509	-0.30008
19.87711	-0.08777	-0.18829
19.91686	-0.05508	-0.22128
19.95789	-0.06472	0.026731
19.99736	0.007819	0.092094
20.03703	0.026938	0.16662
20.07701	0.048736	0.18067
20.11709	0.052846	0.678525
20.15706	0.198468	0.317503
20.19765	0.09287	0.409744
20.23706	0.11985	0.356599
20.2769	0.104305	0.267412
20.31687	0.078218	0.212435
20.35701	0.062137	0.094538
20.39746	0.027652	0.050555
20.43747	0.014787	-0.0313
20.4769	-0.00916	0.189832
20.52036	0.055526	0.875834
20.55703	0.256181	0.479993
20.59698	0.140398	-1.71607
20.63699	-0.50195	0.314449
20.67699	0.091976	-1.6226

Experiment

20.71707	-0.47461	-0.54259
20.75696	-0.15871	-0.54931
20.79699	-0.16067	-0.51572
20.83697	-0.15085	-0.44913
20.87688	-0.13137	-0.41798
20.91702	-0.12226	-0.36056
20.9569	-0.10546	-0.38682
20.99706	-0.11315	-0.22861
21.03699	-0.06687	-0.00198
21.07693	-0.00058	-0.15347
21.11706	-0.04489	-0.06795
21.15701	-0.01988	0.415242
21.197	0.121458	0.321169
21.2371	0.093942	0.442731
21.27701	0.129499	0.472052
21.31698	0.138075	0.498319
21.35701	0.145758	0.457391
21.39702	0.133787	0.479993
21.43765	0.140398	0.390196
21.4771	0.114132	0.403635
21.51703	0.118063	0.473274
21.55698	0.138433	0.840404
21.59718	0.245818	0.732281
21.63698	0.214192	0.112253
21.67702	0.032834	0.436622

Experiment

21.71702	0.127712	-0.59452
21.75722	-0.1739	-0.08322
21.79702	-0.02434	-1.34649
21.8371	-0.39385	-0.83886
21.87721	-0.24537	-0.44852
21.91703	-0.13119	-0.63728
21.95704	-0.1864	-0.50228
21.99702	-0.14692	-0.62323
22.03711	-0.18229	-0.58536
22.077	-0.17122	-0.58841
22.1172	-0.17211	-0.61773
22.15704	-0.18069	-0.50839
22.19702	-0.1487	-0.20662
22.23701	-0.06044	-0.66599
22.27709	-0.1948	-0.30863
22.31716	-0.09028	0.015736
22.35687	0.004603	-0.12782
22.39699	-0.03739	0.036505
22.43686	0.010678	0.119583
22.47708	0.034978	0.23076
22.51686	0.067497	0.253362
22.55687	0.074109	0.255806
22.59703	0.074823	0.407911
22.63703	0.119314	0.281462
22.67703	0.082328	0.886219

Experiment

22.71718	0.259219	0.087818
22.75707	0.025687	0.92959
22.79701	0.271905	1.052374
22.83692	0.307819	1.017555
22.87733	0.297635	-0.71303
22.91796	-0.20856	0.704181
22.95695	0.205973	-0.02153
22.99716	-0.0063	-0.53832
23.037	-0.15746	-0.5933
23.0769	-0.17354	-0.16569
23.11704	-0.04846	-1.89627
23.15703	-0.55466	-0.3294
23.19698	-0.09635	-0.32452
23.23701	-0.09492	-0.3801
23.27708	-0.11118	-0.3459
23.31716	-0.10117	-0.38133
23.35708	-0.11154	-0.37339
23.397	-0.10922	-0.41004
23.43708	-0.11994	-0.31352
23.47695	-0.0917	-0.02947
23.51689	-0.00862	-0.29581
23.55734	-0.08652	0.023066
23.59712	0.006747	0.423183
23.63713	0.123781	-0.082
23.67708	-0.02399	0.304064

Experiment

23.71776	0.088939	0.325445
23.75937	0.095193	0.377979
23.79699	0.110559	0.337051
23.8371	0.098587	0.376146
23.87784	0.110023	0.257639
23.9171	0.075359	0.323612
23.9572	0.094657	0.240534
23.99702	0.070356	0.539858
24.0372	0.157909	0.57651
24.07688	0.168629	0.92959
24.11712	0.271905	0.751828
24.15692	0.21991	0.344381
24.19702	0.100732	-0.18035
24.23697	-0.05275	-0.01786
24.27902	-0.00522	0.034673
24.31812	0.010142	-0.85902
24.35748	-0.25126	0.214267
24.39702	0.062673	-1.5157
24.437	-0.44334	-0.0704
24.4771	-0.02059	-1.04656
24.51712	-0.30612	-0.34284
24.55694	-0.10028	-1.22554
24.59721	-0.35847	-1.23226
24.63704	-0.36044	-0.78511
24.67702	-0.22964	-0.24083

Experiment

24.71688	-0.07044	-0.1492
24.75692	-0.04364	-0.18402
24.79733	-0.05382	-0.14859
24.83701	-0.04346	-0.03313
24.87702	-0.00969	0.043836
24.91717	0.012822	0.179448
24.9569	0.052488	0.353544
24.99702	0.103412	0.097592

Third measurement of 10 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
25.31717	0.094478	0.323001
25.44049	0.204901	0.700516
25.48035	0.220446	0.753661
25.52034	0.211155	0.721896
25.5602	0.265294	0.906988
25.60029	-0.01523	-0.05207
25.64017	0.169165	0.578343
25.68035	0.203829	0.696851
25.72057	0.152191	0.520311
25.76027	0.132358	0.452505
25.80148	0.089117	0.304675
25.84048	0.020862	0.071325
25.88019	-0.05561	-0.19013
25.9202	-0.10332	-0.35323

25.96018	-0.14799	-0.50594
26.00029	-0.26949	-0.92133
26.04223	-0.2568	-0.87796
26.08042	-0.28075	-0.95982
26.12031	-0.26788	-0.91583
26.16098	-0.29665	-1.01418
26.20018	-0.27664	-0.94577
26.24018	-0.29415	-1.00563
26.28041	-0.24608	-0.84131
26.32031	0.188462	0.644316
26.3604	-1.36157	-4.65494
26.40025	-0.1873	-0.64033
26.44046	-0.03024	-0.10338
26.48019	-0.0465	-0.15897
26.52047	-0.00719	-0.02458
26.56053	0.045163	0.154402
26.60034	0.082506	0.282073
26.64075	0.127176	0.434789
26.68039	0.15773	0.539247
26.72055	0.17935	0.613162
26.76019	0.247605	0.846513
26.80041	0.12396	0.423794
26.84018	0.241173	0.824521
26.8803	0.210976	0.721285
26.92031	0.200077	0.684022

Experiment

26.96017	0.174168	0.595447
27.00031	0.142542	0.487324
27.0403	0.083042	0.283906
27.08031	0.014609	0.049944
27.12035	-0.02899	-0.09911
27.16072	-0.06794	-0.23228
27.20042	-0.12869	-0.43997
27.24058	-0.10153	-0.34712
27.28032	-0.15371	-0.52549
27.32069	-0.22	-0.75212
27.36034	-0.29165	-0.99708
27.40054	-0.29576	-1.01113
27.44062	-0.2979	-1.01846
27.48111	-0.29736	-1.01663
27.5202	-0.30237	-1.03373
27.56034	-0.29307	-1.00197
27.60072	-0.26538	-0.90728
27.64025	-0.23393	-0.79977
27.68063	-0.0876	-0.29947
27.72018	-0.23072	-0.78877
27.76038	-0.1219	-0.41676
27.80046	-0.09849	-0.33673
27.84077	-0.01988	-0.06795
27.88091	0.044984	0.153791
27.92018	0.058385	0.199606

Experiment

27.96054	0.110559	0.377979
28.00023	0.140041	0.478772
28.04029	0.158266	0.54108
28.08037	0.170952	0.584451
28.12059	0.143972	0.492211
28.16046	0.174704	0.59728
28.20039	0.172739	0.59056
28.24029	0.171488	0.586284
28.28035	0.155228	0.530695
28.32027	0.137361	0.469609
28.36199	0.108772	0.37187
28.40036	0.089296	0.305286
28.44037	0.022828	0.078044
28.48079	-0.0172	-0.05879
28.52255	0.000851	0.002908
28.56019	-0.10725	-0.36667
28.6004	-0.11529	-0.39415
28.64035	-0.16282	-0.55664
28.68058	-0.17836	-0.60979
28.72021	-0.19248	-0.65805
28.76032	-0.18748	-0.64094
28.80056	-0.19141	-0.65438
28.84049	-0.18908	-0.64644
28.88034	-0.16586	-0.56703
28.9203	0.99037	3.38588

Experiment

28.96058	-0.50713	-1.73378
29.00033	2.380664	8.139022
29.04032	0.263865	0.902101
29.08096	-2.73489	-9.35005
29.12023	0.602996	2.061524
29.16038	-0.37348	-1.27685
29.20054	-0.02792	-0.09544
29.24054	0.102876	0.351712
29.28035	0.053025	0.18128
29.32093	0.095371	0.326055
29.36106	0.04284	0.146461
29.40035	0.039266	0.134244
29.44037	0.09412	0.321779
29.48037	0.087867	0.300399
29.52023	0.132	0.451283
29.56039	0.137718	0.470831
29.60019	0.120207	0.410966
29.64038	0.119314	0.407911
29.68034	0.097515	0.333386
29.72119	0.085008	0.290625
29.76116	0.061422	0.209991
29.8009	0.037301	0.127524
29.84038	0.234919	0.803141
29.88031	0.12396	0.423794
29.92066	0.148617	0.508093

Experiment

29.96038	0.118599	0.405468
30.00155	0.256896	0.878278
30.04032	-0.06044	-0.20662
30.08063	-0.35329	-1.20783
30.12187	-1.15252	-3.94023
30.16047	0.039266	0.134244
30.20017	0.049094	0.167841
30.24032	0.005675	0.019401
30.28053	-0.00058	-0.00198
30.32023	0.034085	0.116529
30.36031	0.080898	0.276575
30.40053	0.105735	0.361486
30.44024	0.121637	0.415853
30.48021	0.195074	0.666918
30.52198	0.133251	0.455559
30.56023	0.199005	0.680357
30.60031	0.182745	0.624768
30.64019	0.173454	0.593004
30.68029	0.155943	0.533139
30.72117	0.112167	0.383477
30.76136	0.102876	0.351712
30.80047	0.077682	0.26558
30.84018	0.020326	0.069492
30.88049	-0.0297	-0.10155
30.92037	0.388046	1.326653

Experiment

30.96028	0.571012	1.952179
31.00036	0.994301	3.399318
31.04018	0.979113	3.347395
31.0803	1.419555	4.853178
31.12043	1.341115	4.585008
31.16019	1.347726	4.60761
31.20057	2.277567	7.786553
31.24035	2.202701	7.530601
31.28105	-0.93417	-3.19375
31.32019	-0.17747	-0.60674
31.36147	-0.55948	-1.91277
31.40044	-0.37277	-1.27441
31.44035	-0.6758	-2.31044
31.48095	-0.98063	-3.35258
31.52035	-2.26943	-7.75875
31.56037	-3.67009	-12.5473
31.60025	-3.52786	-12.0611
31.64034	-1.70177	-5.81803
31.68036	0.068748	0.235037
31.72035	0.045163	0.154402
31.76049	0.145758	0.498319
31.80054	0.157909	0.539858
31.84055	0.17399	0.594836
31.88019	0.168629	0.57651
31.92033	0.152727	0.522143

Experiment

31.96033	0.154514	0.528252
32.00017	-0.16979	-0.58047
32.04031	0.165234	0.564904
32.08037	0.333549	1.140339
32.12042	0.454693	1.554505
32.16045	0.934622	3.195289
32.2009	1.394182	4.766435
32.24019	1.520329	5.197706
32.28109	1.801568	6.159208
32.32053	1.930574	6.600253
32.36032	1.710621	5.848278
32.40063	-0.26663	-0.91156
32.4405	-0.15263	-0.52183
32.48032	-1.04388	-3.56882
32.52022	-0.89129	-3.04714
32.56032	-0.3188	-1.08993
32.60017	-0.14227	-0.4864
32.64031	-0.17032	-0.5823
32.68136	0.057134	0.19533
32.72033	-0.13334	-0.45585
32.76016	-0.26341	-0.90056
32.8003	-0.62113	-2.12351
32.84044	-1.05281	-3.59936
32.88129	-2.0895	-7.1436
32.92074	-3.90898	-13.364

Experiment

32.96056	-3.44388	-11.774
33.0007	-0.45263	-1.54747
33.04023	0.395729	1.35292
33.08027	-0.04721	-0.16142
33.12029	0.048022	0.164176
33.16042	0.085008	0.290625
33.20035	0.120565	0.412187
33.24022	0.119493	0.408522
33.28062	0.130213	0.445174
33.32037	0.116277	0.397527
33.36031	-0.05865	-0.20051
33.40159	0.252429	0.863006
33.44059	0.179707	0.614384
33.48138	0.730393	2.497071
33.52018	0.685724	2.344354
33.56021	1.587691	5.428002
33.60039	1.805142	6.171425
33.64035	1.919138	6.561157
33.68019	2.155887	7.370553
33.72036	2.16768	7.410871
33.76018	-0.40654	-1.38987
33.80019	0.657135	2.246616
33.84019	-1.92423	-6.57855
33.8807	-0.55859	-1.90971
33.92031	-0.92899	-3.17603

Experiment

33.96018	-0.69992	-2.39291
34.00032	0.296741	1.014501
34.04031	0.485604	1.660185
34.08042	0.646057	2.208742
34.12081	0.869941	2.974156
34.16073	1.003056	3.429251
34.20032	-0.28057	-0.95921
34.24017	-0.22571	-0.77167
34.28117	-0.14584	-0.49861
34.32037	-0.12798	-0.43753
34.36035	-0.17104	-0.58474
34.40018	-0.31612	-1.08077
34.44044	-0.24912	-0.85169
34.48019	-0.36705	-1.25486
34.52036	-0.80928	-2.76676
34.56232	-1.57348	-5.37943
34.60038	-2.68808	-9.19
34.64024	-4.14162	-14.1594
34.68036	0.304603	1.041379
34.72022	0.988226	3.378549
34.76067	-0.12297	-0.42042
34.80036	-0.39099	-1.33672
34.84178	0.319255	1.09147
34.8839	0.059278	0.202661
34.92082	0.04963	0.169674

Experiment

34.96121	0.162197	0.554519
35.00375	0.292453	0.99984
35.04016	0.252965	0.864839
35.08155	0.165413	0.565515
35.12042	0.04016	0.137298
35.16086	0.016753	0.057275
35.20028	0.05231	0.178837
35.24017	0.132358	0.452505
35.28109	0.457016	1.562447
35.32018	0.857076	2.930174

First measurement of 15 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
40.44755	0.098051	0.335218
40.48756	0.078397	0.268023
40.5276	0.077325	0.264358
40.56755	0.059814	0.204493
40.6076	0.047843	0.163565
40.64788	0.053739	0.183724
40.6879	0.075538	0.258249
40.72761	0.229916	0.786037
40.76755	0.103769	0.354766
40.80758	0.075359	0.257639
40.85083	0.031226	0.106755
40.88806	0.163805	0.560017

Experiment

40.9276	-0.01076	-0.0368
40.96768	-0.0549	-0.18768
41.00838	-0.08742	-0.29886
41.04756	-0.10368	-0.35445
41.08759	0.018897	0.064605
41.12755	0.033727	0.115307
41.16782	0.026223	0.089651
41.20757	0.031583	0.107977
41.2476	0.034085	0.116529
41.28815	0.048379	0.165398
41.33021	0.066425	0.227095
41.36757	0.031047	0.106144
41.4076	0.066068	0.225874
41.44761	0.073572	0.25153
41.48813	0.084829	0.290014
41.52881	0.106271	0.363318
41.5676	0.122173	0.417685
41.60775	0.124317	0.425016
41.64792	0.123245	0.42135
41.68757	0.112882	0.38592
41.72773	0.108772	0.37187
41.76786	0.099123	0.338884
41.80781	0.079826	0.27291
41.8476	0.078575	0.268634
41.8901	0.07393	0.252752

Experiment

41.92756	0.084651	0.289404
41.96769	0.110559	0.377979
42.00758	0.172024	0.588117
42.04756	0.206866	0.707235
42.08756	0.076967	0.263136
42.12786	-0.01577	-0.0539
42.16767	0.107343	0.366983
42.20772	0.204186	0.698072
42.24784	0.259398	0.88683
42.28781	-0.00755	-0.0258
42.32759	0.183102	0.62599
42.36779	-0.10796	-0.36911
42.40764	0.114668	0.392029
42.4478	-0.12976	-0.44363
42.48778	-0.06866	-0.23472
42.52794	-0.13066	-0.44669
42.56782	-0.23054	-0.78816
42.60797	-0.10403	-0.35567
42.64769	0.019433	0.066438
42.68828	-0.02256	-0.07712
42.72757	-0.0281	-0.09605
42.76773	-0.03774	-0.12904
42.8076	-0.0197	-0.06734
42.84768	0.011035	0.037727
42.89052	0.013001	0.044447

Experiment

42.92764	-0.02005	-0.06856
42.96799	0.079648	0.272299
43.00759	0.098587	0.337051
43.04767	0.116098	0.396916
43.08769	0.148439	0.507482
43.12773	0.175955	0.601556
43.16759	0.161661	0.552686
43.20756	0.146116	0.499541
43.24788	0.143257	0.489767
43.28768	0.134502	0.459835
43.32798	0.106449	0.363929
43.36826	0.101089	0.345603
43.40784	0.073036	0.249697
43.44767	0.034978	0.119583
43.48769	0.11181	0.382255
43.52858	0.048736	0.16662
43.56775	0.116455	0.398138
43.60774	0.105199	0.359653
43.64762	0.075359	0.257639
43.68776	0.000314	0.001075
43.72805	-0.03882	-0.1327
43.7679	0.001387	0.00474
43.80798	0.081434	0.278408
43.84774	0.068391	0.233815
43.88774	0.049094	0.167841

Experiment

43.9277	0.073394	0.250919
43.96771	0.149332	0.510537
44.00797	0.240994	0.823911
44.04767	0.109129	0.373092
44.08782	-0.01041	-0.03558
44.12755	0.018361	0.062773
44.16757	0.032119	0.109809
44.20757	0.012465	0.042614
44.24824	-0.03542	-0.1211
44.28776	-0.05508	-0.18829
44.32765	-0.03864	-0.13209
44.36774	-0.12565	-0.42958
44.4112	-0.10707	-0.36605
44.44756	-0.11511	-0.39354
44.48803	-0.04364	-0.1492
44.52918	0.109487	0.374314
44.56758	0.021577	0.073768
44.60758	0.030511	0.104311
44.64778	0.054097	0.184946
44.68763	0.069642	0.238091
44.72771	0.0834	0.285127
44.76767	0.107521	0.367594
44.80765	0.114311	0.390807
44.84765	0.077503	0.264969
44.88774	0.12253	0.418907

Experiment

44.92786	0.084829	0.290014
44.96773	0.04552	0.155624
45.00756	0.032119	0.109809
45.04757	0.0591	0.20205
45.08781	0.010678	0.036505
45.12768	0.018897	0.064605
45.16789	0.021756	0.074379
45.20791	0.027295	0.093316
45.24848	0.037122	0.126913
45.28777	0.050523	0.172728
45.32756	0.039088	0.133633
45.36778	0.054097	0.184946
45.4077	0.049272	0.168452
45.44782	0.040517	0.13852
45.61504	0.066247	0.226484
45.65485	0.054097	0.184946
45.69497	0.074645	0.255195
45.73518	0.073394	0.250919
45.77485	0.079648	0.272299
45.81487	0.083936	0.28696
45.85495	0.12253	0.418907
45.89518	0.136288	0.465944
45.93485	0.131107	0.448228
45.97613	0.116813	0.399359
46.01486	0.103412	0.353544

Experiment

46.05499	0.196146	0.670583
46.09507	0.087152	0.297956
46.1354	0.107164	0.366373
46.17521	0.068391	0.233815
46.21498	0.09823	0.335829
46.25488	0.093942	0.321169
46.29493	0.107343	0.366983
46.33502	0.111631	0.381644
46.37542	0.122173	0.417685
46.41535	0.132715	0.453726
46.45491	0.1429	0.488546
46.49488	0.152727	0.522143
46.53514	0.158087	0.540469
46.57486	0.129677	0.443342
46.61533	0.118778	0.406079
46.65494	0.111274	0.380422
46.69511	0.109308	0.373703
46.73525	0.076253	0.260693
46.77525	0.051595	0.176393
46.81505	0.041768	0.142796
46.85536	0.014966	0.051166
46.895	0.019254	0.065827
46.93486	-0.00487	-0.01664
46.97496	0.186676	0.638208
47.01485	0.081613	0.279019

Experiment

47.05487	0.121101	0.41402
47.09509	0.18614	0.636375
47.13496	0.185246	0.633321
47.17502	0.174704	0.59728
47.21502	0.213477	0.729837
47.25509	0.207938	0.7109
47.29499	0.222411	0.760381
47.33554	0.242959	0.83063
47.37501	0.253323	0.86606
47.4151	0.208832	0.713955
47.45487	0.199005	0.680357
47.49495	0.17667	0.603999
47.53501	0.160053	0.547189
47.5749	0.13611	0.465333
47.61527	0.098945	0.338273
47.65486	0.064103	0.219154
47.69526	0.021577	0.073768
47.73485	-0.0113	-0.03863
47.77487	-0.15013	-0.51327
47.81487	0.022292	0.076212
47.85487	-0.04453	-0.15225
47.89504	-0.00594	-0.02031
47.93493	-0.00594	-0.02031
47.97504	0.025329	0.086596
48.01505	0.051059	0.174561

Experiment

48.05489	0.070178	0.239923
48.09646	0.082864	0.283295
48.13525	0.107164	0.366373
48.17494	0.140041	0.478772
48.21507	0.173632	0.593614
48.25526	0.205258	0.701738
48.29632	0.208117	0.711511
48.33486	0.212584	0.726783
48.37536	0.208832	0.713955
48.41491	0.202399	0.691964
48.45493	0.187748	0.641873
48.49489	0.210619	0.720064
48.53521	0.183281	0.626601
48.57486	0.172917	0.591171
48.61505	0.137897	0.471441
48.65486	0.121458	0.415242
48.69487	0.21723	0.742666
48.73539	0.086437	0.295512
48.77504	0.043019	0.147072
48.81504	0.056777	0.194109
48.85511	0.051238	0.175172
48.89534	0.055883	0.191054
48.93501	0.077146	0.263747
48.97486	0.069999	0.239313
49.015	0.068927	0.235647

Experiment

49.05499	0.076431	0.261304
49.09503	0.081256	0.277797
49.13485	0.086259	0.294901
49.17487	0.102697	0.351101
49.21498	0.120565	0.412187
49.25485	0.116455	0.398138
49.29502	0.108236	0.370038
49.33484	0.107879	0.368816
49.37502	0.103054	0.352323
49.41501	0.11717	0.400581
49.45486	0.097337	0.332775
49.49503	0.073751	0.252141
49.53492	0.057491	0.196552
49.57624	-0.07419	-0.25366
49.615	0.106985	0.365762
49.65489	0.032834	0.112253
49.69486	0.063388	0.216711
49.73539	0.081434	0.278408
49.775	0.111452	0.381033
49.81499	0.136646	0.467165
49.85497	0.144686	0.494654
49.895	0.161125	0.550854
49.93497	0.171309	0.585673
49.975	0.190607	0.651647
50.01546	0.199183	0.680968

Experiment

50.05535	0.14558	0.497709
50.09545	0.204007	0.697461
50.13505	0.071964	0.246032
50.17526	0.068391	0.233815
50.21489	0.112346	0.384088
50.25486	0.094835	0.324223
50.29519	0.089832	0.307119
50.33513	0.18614	0.636375
50.37492	0.120207	0.410966
50.41496	0.065532	0.224041
50.45523	-0.04453	-0.15225
50.49484	0.094478	0.323001
50.53485	0.097158	0.332164
50.57514	0.281018	0.960744
50.61522	0.132179	0.451894
50.65492	0.078754	0.269245
50.69588	0.086973	0.297345
50.73552	0.107521	0.367594
50.77505	0.088581	0.302843
50.81491	0.080005	0.273521
50.85502	0.090368	0.308951
50.89502	0.090904	0.310784
50.93503	0.093227	0.318725
50.97621	0.100374	0.34316
51.0152	0.09555	0.326666

Experiment

51.05556	0.109487	0.374314
51.095	0.078754	0.269245
51.13496	0.168272	0.575288
51.17505	0.117706	0.402414
51.21522	0.166128	0.567958
51.25484	0.101625	0.347436
51.29488	0.110201	0.376757
51.33486	0.06446	0.220376
51.3752	0.052131	0.178226
51.41499	0.036407	0.12447
51.45485	0.033906	0.115918
51.49503	0.009784	0.033451
51.53503	0.001208	0.004129
51.57669	0.000136	0.000464
51.61493	-0.01255	-0.04291
51.6551	-0.03024	-0.10338
51.6952	-0.03685	-0.12598
51.73576	0.005496	0.01879
51.77514	0.010678	0.036505
51.81499	-0.04364	-0.1492
51.85593	0.076253	0.260693
51.89505	0.072143	0.246643
51.93502	0.104841	0.358431
51.97505	0.135038	0.461668
52.015	0.169701	0.580175

Experiment

52.05487	0.186497	0.637597
52.09535	0.179171	0.612551
52.13517	0.175776	0.600945
52.17517	0.175955	0.601556
52.21519	0.177742	0.607664
52.25484	0.160231	0.547799
52.29522	0.152548	0.521532
52.33621	0.138075	0.472052
52.375	0.15237	0.520921
52.41514	0.124317	0.425016
52.45541	0.127355	0.4354
52.49504	0.114847	0.39264
52.53524	0.071071	0.242978
52.57492	0.100553	0.343771
52.61544	0.038909	0.133022
52.65559	0.034263	0.11714
52.69486	0.002816	0.009627
52.73497	-0.0138	-0.04718
52.77506	-0.04078	-0.13942
52.81517	-0.05204	-0.17791
52.85509	-0.054	-0.18463
52.89547	-0.05365	-0.18341
52.93486	-0.04864	-0.1663
52.975	-0.04471	-0.15286
53.01499	-0.04471	-0.15286

Experiment

53.05484	-0.04668	-0.15958
53.09519	-0.03882	-0.1327
53.13505	-0.00165	-0.00564
53.17506	-0.02399	-0.082
53.21535	-0.01845	-0.06307
53.2551	-0.00862	-0.02947
53.29483	0.037837	0.129357
53.335	0.03873	0.132411
53.375	0.014251	0.048723
53.41508	0.118957	0.40669
53.45492	0.119493	0.408522
53.49593	0.129499	0.442731
53.5351	0.165592	0.566125
53.57501	0.171667	0.586895
53.61486	0.168093	0.574678
53.65504	0.161303	0.551465
53.69517	0.139147	0.475717
53.73517	0.142006	0.485491
53.77612	0.122352	0.418296
53.81489	0.113596	0.388364
53.85505	0.101446	0.346825
53.89517	0.098945	0.338273
53.93505	0.087509	0.299177
53.97508	0.078933	0.269856
54.01527	0.066247	0.226484

Experiment

54.0553	0.050344	0.172117
54.09504	0.041768	0.142796
54.13504	0.026938	0.092094
54.17501	0.009248	0.031618
54.21513	-0.01344	-0.04596
54.25495	-0.01166	-0.03985
54.29495	-0.02309	-0.07895
54.33501	-0.01291	-0.04413
54.37495	-0.03006	-0.10277
54.41551	0.02801	0.095759
54.45486	0.029439	0.100646
54.49486	0.046771	0.1599
54.53494	0.030868	0.105533
54.57499	0.043733	0.149515
54.61508	0.0591	0.20205
54.65485	0.046235	0.158067
54.69512	0.047843	0.163565
54.73501	0.042483	0.145239
54.77504	0.038194	0.130579
54.81487	0.029082	0.099424
54.85485	0.024615	0.084153
54.89487	0.028546	0.097592
54.93521	0.017646	0.060329
54.97629	0.020326	0.069492
55.01485	0.019612	0.067049

Experiment

55.05505	0.013715	0.04689
55.09497	0.012107	0.041392
55.13484	0.007998	0.027342
55.17499	0.008176	0.027953
55.21519	0.013537	0.046279
55.25643	0.018897	0.064605
55.29538	0.030154	0.10309
55.33512	0.051952	0.177615
55.37524	0.08197	0.280241
55.41533	0.081256	0.277797

Second measurement of 15 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
70.70569	0.358564	1.311381
70.74418	0.383579	1.359029
70.7842	0.397516	1.307105
70.82448	0.382328	1.089637
70.86478	0.318719	0.764657
70.90419	0.223662	0.11042
70.94425	0.032298	0.240534
70.98434	0.070356	0.800087
71.02447	0.234025	1.815956
71.06434	0.531167	0.96502
71.10448	0.282268	1.136674
71.1442	0.332477	2.682774

71.18433	0.784711	3.946654
71.22437	1.154396	6.149434
71.26458	1.798709	6.497016
71.3042	1.900377	6.060859
71.34418	1.772801	-0.26099
71.38419	-0.07634	-3.49735
71.42417	-1.02297	-2.83945
71.46418	-0.83054	-2.60854
71.50464	-0.763	-0.90423
71.54425	-0.26449	-0.38682
71.58438	-0.11315	0.580786
71.62417	0.16988	0.824521
71.66426	0.241173	0.398748
71.70439	0.116634	-0.38438
71.74432	-0.11243	-1.58901
71.78419	-0.46478	-2.62809
71.82419	-0.76872	-4.61035
71.86419	-1.34853	2.704765
71.90418	0.791144	-0.43753
71.94559	-0.12798	1.28206
71.98443	0.375002	1.083528
72.02598	0.316932	1.095746
72.06562	0.320506	1.175769
72.10434	0.343912	1.152556
72.14422	0.337123	0.577121

Experiment

72.18433	0.168808	0.884386
72.22467	0.258683	1.151945
72.26426	0.336944	0.940586
72.30486	0.275121	0.924092
72.34422	0.270297	0.968075
72.38418	0.283162	1.005948
72.42469	0.29424	1.085972
72.46448	0.317647	1.13423
72.50441	0.331762	1.096967
72.54418	0.320863	0.968075
72.58453	0.283162	0.520311
72.62433	0.152191	1.538623
72.66431	0.450047	-0.925
72.70434	-0.27056	0.153791
72.74445	0.044984	0.154402
72.78417	0.045163	-0.53771
72.82433	-0.15728	-0.09544
72.86434	-0.02792	0.58323
72.9043	0.170595	1.238688
72.9443	0.362316	2.373065
72.98438	0.694121	3.550202
73.02422	1.038434	5.157389
73.06448	1.508536	6.023596
73.10431	1.761902	3.910613
73.1443	1.143854	4.39564

Experiment

73.18445	1.285725	-0.94516
73.22419	-0.27646	-1.04595
73.26426	-0.30594	1.150113
73.30429	0.336408	0.739611
73.34436	0.216336	1.392626
73.38419	0.407343	0.323001
73.42419	0.094478	0.612551
73.46418	0.179171	0.544745
73.50417	0.159338	0.047501
73.54417	0.013894	0.341938
73.58424	0.100017	0.052388
73.62455	0.015323	-3.51262
73.6643	-1.02744	-2.5896
73.70448	-0.75746	-3.86509
73.74699	-1.13054	-2.54929
73.78419	-0.74567	-1.37398
73.82489	-0.40189	-2.5725
73.86456	-0.75246	-3.95489
73.90448	-1.1568	2.156819
73.94446	0.630869	1.561225
73.98418	0.456658	0.09637
74.02418	0.028188	0.575899
74.06419	0.168451	0.777485
74.10446	0.227414	0.693796
74.14419	0.202935	0.607664

Experiment

74.18424	0.177742	0.560017
74.22525	0.163805	0.508093
74.26442	0.148617	0.455559
74.30479	0.133251	0.40669
74.34548	0.118957	0.365762
74.38449	0.106985	0.345603
74.42437	0.101089	0.331553
74.46426	0.096979	0.324223
74.50546	0.094835	0.32239
74.54426	0.094299	0.316892
74.58419	0.092691	0.295512
74.62416	0.086437	0.264358
74.66445	0.077325	0.235647
74.70418	0.068927	0.212435
74.74685	0.062137	0.194719
74.7843	0.056955	0.162954
74.82419	0.047664	0.123859
74.8642	0.036229	0.101257
74.90434	0.029618	0.100035
74.94426	0.02926	0.112253
74.98418	0.032834	0.116529
75.02418	0.034085	0.130579
75.06451	0.038194	0.160511
75.10417	0.046949	0.188611
75.14417	0.055169	0.217932

Experiment

75.185	0.063745	0.255195
75.22439	0.074645	0.288182
75.26421	0.084293	0.313838
75.3042	0.091798	0.288182
75.34435	0.084293	0.255195
75.38426	0.074645	0.218543
75.42449	0.063924	0.182502
75.46434	0.053382	0.139131
75.50422	0.040696	0.106144
75.54435	0.031047	0.080488
75.58419	0.023543	0.064605
75.62433	0.018897	0.056053
75.66415	0.016395	0.048723
75.79131	0.014251	0.165398
75.83129	0.048379	0.236258
75.87127	0.069106	-0.16142
75.91114	-0.04721	-0.15775
75.95131	-0.04614	0.079266
75.9911	0.023185	-0.01053
76.03107	-0.00308	0.379812
76.07103	0.111095	0.359042
76.11117	0.10502	0.508704
76.15105	0.148796	0.574067
76.19109	0.167915	0.721285
76.23108	0.210976	0.733503

Experiment

76.27104	0.214549	1.095746
76.31114	0.320506	1.115904
76.35124	0.326402	1.04932
76.39224	0.306926	1.319933
76.43112	0.38608	0.979681
76.47103	0.286557	1.704778
76.51108	0.498648	1.519075
76.55107	0.44433	1.542899
76.59137	0.451298	1.541677
76.63239	0.450941	1.555727
76.67103	0.45505	1.263123
76.71127	0.369463	1.024885
76.75242	0.299779	0.275354
76.79121	0.080541	1.051763
76.83104	0.307641	0.756105
76.87188	0.221161	0.577121
76.91104	0.168808	0.418296
76.95103	0.122352	0.335829
76.99103	0.09823	0.242978
77.0312	0.071071	0.374925
77.07109	0.109665	0.297956
77.11103	0.087152	0.254584
77.15104	0.074466	0.428681
77.19102	0.125389	0.447618
77.23143	0.130928	0.52703

Experiment

77.27106	0.154156	0.608886
77.31138	0.178099	0.674859
77.35129	0.197396	0.859952
77.39135	0.251536	0.969907
77.43105	0.283698	1.101854
77.47105	0.322292	1.349866
77.51117	0.394836	0.506261
77.5512	0.148081	1.668737
77.59118	0.488106	1.269842
77.63124	0.371429	1.236245
77.67117	0.361602	1.173326
77.71115	0.343198	1.100633
77.75103	0.321935	1.040157
77.79137	0.304246	0.990677
77.83105	0.289773	0.875223
77.87105	0.256003	0.771987
77.91109	0.225806	0.762213
77.95104	0.222947	0.643705
77.99103	0.188284	0.600334
78.03107	0.175598	0.58323
78.07113	0.170595	0.481215
78.11165	0.140755	0.637597
78.15127	0.186497	0.497098
78.19104	0.145401	0.540469
78.23138	0.158087	0.732892

Experiment

78.27108	0.214371	0.238091
78.31133	0.069642	0.671805
78.35103	0.196503	0.974183
78.39218	0.284949	1.06337
78.43103	0.311036	1.24724
78.47133	0.364818	1.203258
78.51113	0.351953	1.305883
78.55127	0.381971	1.304662
78.59133	0.381613	1.336426
78.63117	0.390905	1.310159
78.67104	0.383222	1.343757
78.71122	0.393049	1.223416
78.75135	0.357849	1.07803
78.79108	0.315324	0.984568
78.83311	0.287986	0.900269
78.87118	0.263329	0.801919
78.91103	0.234561	0.672416
78.95102	0.196682	0.468998
78.99104	0.137182	0.415853
79.0313	0.121637	-0.01725
79.07203	-0.00505	0.100035
79.11227	0.02926	0.238091
79.15123	0.069642	0.359653
79.19122	0.105199	0.399359
79.23105	0.116813	0.479993

Experiment

79.27116	0.140398	0.591171
79.31123	0.172917	0.725561
79.35132	0.212227	0.755494
79.39132	0.220982	0.743276
79.43122	0.217408	1.381631
79.47134	0.404127	4.450618
79.51103	1.301806	-3.28416
79.5512	-0.96062	-0.41676
79.59105	-0.1219	0.900269
79.63104	0.263329	1.010224
79.67116	0.295491	1.252127
79.71156	0.366247	0.698683
79.75102	0.204365	1.073754
79.79103	0.314073	-0.00381
79.8313	-0.00111	-0.1101
79.87103	-0.0322	0.324223
79.91104	0.094835	0.483659
79.95118	0.14147	0.935088
79.99104	0.273513	0.669362
80.03114	0.195788	0.684633
80.07118	0.200255	0.818413
80.11105	0.239386	0.594836
80.15131	0.17399	0.728616
80.19163	0.21312	1.192873
80.23102	0.348915	0.78787

Experiment

80.2711	0.230452	0.622325
80.31163	0.18203	0.881943
80.35103	0.257968	0.786037
80.39103	0.229916	0.798865
80.43103	0.233668	0.644927
80.47137	0.188641	0.662642
80.51104	0.193823	0.692575
80.5511	0.202578	0.583841
80.59136	0.170773	1.016944
80.63119	0.297456	0.345603
80.67103	0.101089	1.220362
80.7113	0.356956	0.740833
80.75116	0.216694	0.528863
80.79111	0.154692	0.58323
80.8311	0.170595	0.870336
80.87117	0.254573	0.765878
80.91115	0.224019	0.841015
80.95194	0.245997	0.73167
80.99113	0.214013	0.842237
81.03105	0.246354	0.826965
81.07101	0.241887	0.965631
81.11117	0.282447	0.738389
81.15103	0.215979	2.258833
81.19151	0.660709	1.627809
81.23111	0.476134	1.251516

Experiment

81.27109	0.366068	0.383477
81.31119	0.112167	0.586895
81.3512	0.171667	-0.1663
81.39137	-0.04864	-0.06734
81.43103	-0.0197	0.55513
81.47106	0.162375	0.351712
81.51111	0.102876	0.311395
81.55115	0.091083	0.324834
81.59118	0.095014	0.249086
81.63109	0.072858	0.149515
81.6716	0.043733	0.348047
81.7111	0.101804	0.125692
81.75111	0.036765	-0.3575
81.79108	-0.10457	0.545967
81.83107	0.159695	0.15257
81.87108	0.044627	0.197163
81.91102	0.05767	0.390807
81.95102	0.114311	0.444563
81.99105	0.130035	0.538637
82.03103	0.157551	0.619882
82.07126	0.181315	0.709679
82.11128	0.207581	0.757937
82.15132	0.221697	0.744498
82.19124	0.217766	1.085361
82.23111	0.317468	1.319933

Experiment

82.27126	0.38608	1.100633
82.31124	0.321935	2.337024
82.35156	0.683579	1.453713
82.39108	0.425211	1.719439
82.43147	0.502936	1.151334
82.47104	0.336765	0.64676
82.51119	0.189177	1.498917
82.55136	0.438433	0.327888
82.59113	0.095907	0.818413
82.63102	0.239386	-0.12476
82.67112	-0.03649	-0.98425
82.71134	-0.28789	0.719453
82.75102	0.21044	0.382866
82.79103	0.111988	0.36454
82.83143	0.106628	0.304064
82.87132	0.088939	0.227095
82.91129	0.066425	0.271078
82.95133	0.07929	0.164787
82.99124	0.0482	-0.22617
83.03119	-0.06615	0.088429
83.07122	0.025865	0.607053
83.11113	0.177563	0.131189
83.15105	0.038373	0.070714
83.1913	0.020684	0.257639
83.23105	0.075359	0.320558

Experiment

83.2712	0.093763	0.40669
83.31137	0.118957	0.453115
83.35103	0.132536	0.572845
83.39103	0.167557	0.502595
83.43103	0.147009	0.370649
83.47102	0.108415	0.663253
83.51144	0.194002	1.266177
83.55102	0.370357	2.720647
83.5912	0.795789	1.206312
83.63111	0.352846	1.328485
83.67106	0.388582	0.702348
83.71105	0.205437	2.148877
83.75127	0.628547	1.354752
83.79105	0.396265	1.906975
83.83105	0.55779	0.227706
83.87104	0.066604	1.954011
83.91154	0.571548	0.461057
83.95187	0.134859	0.90149
83.99103	0.263686	0.714566
84.03173	0.20901	0.410966
84.0712	0.120207	0.468998
84.11104	0.137182	0.164176
84.15114	0.048022	-0.38377
84.19102	-0.11225	-1.4314
84.23144	-0.41869	-0.73441

Experiment

84.2712	-0.21481	-0.62812
84.31137	-0.18372	-0.08994
84.35103	-0.02631	0.06827
84.39204	0.019969	0.071935
84.43141	0.021041	0.142796
84.47123	0.041768	-0.31841
84.51104	-0.09313	-0.1944
84.55106	-0.05686	0.246032
84.59141	0.071964	0.176393
84.63107	0.051595	0.140963
84.67103	0.041232	0.208158
84.71117	0.060886	0.326055
84.75106	0.095371	0.389585
84.7916	0.113954	0.467165
84.83138	0.136646	0.539247
84.87104	0.15773	0.657755
84.91156	0.192393	0.584451
84.95129	0.170952	0.533139
84.99128	0.155943	0.475717
85.03117	0.139147	0.510537
85.07125	0.149332	0.873391
85.11107	0.255467	1.641248
85.1512	0.480065	2.288155
85.1914	0.669285	0.517256
85.23122	0.151297	0.743276

Experiment

85.27106	0.217408	0.975405
85.31119	0.285306	0.778707
85.35116	0.227772	0.889884
85.39107	0.260291	1.09208
85.43122	0.319434	0.748774
85.47109	0.219016	0.622936
85.5112	0.182209	0.765267
85.55127	0.223841	0.479993
85.59102	0.140398	0.651647
85.63104	0.190607	0.387753
85.67133	0.113418	0.436011
85.71166	0.127533	0.387142

Third measurement of 15 seconds:

Time (s)	Velocity (m/s)	Gyroscope y (rad/s)
85.79142	0.064281	0.219765
85.83148	0.009606	0.03284
85.87119	-0.01309	-0.04474
85.91104	-0.01702	-0.05818
85.95104	-0.00344	-0.01175
85.99103	-0.0113	-0.03863
86.03106	-0.01916	-0.06551
86.07104	-0.00111	-0.00381
86.11152	-0.01612	-0.05512
86.15102	-0.00969	-0.03313

Experiment

86.1913	-0.0272	-0.093
86.2311	-0.02595	-0.08872
86.27107	-0.02649	-0.09055
86.31134	-0.10796	-0.36911
86.35104	-0.30076	-1.02823
86.39263	-0.84215	-2.87915
86.43103	-0.23876	-0.81626
86.47106	-0.15192	-0.51938
86.51112	-0.02792	-0.09544
86.55117	0.003173	0.010849
86.59118	0.073394	0.250919
86.63102	0.087331	0.298566
86.67119	0.039266	0.134244
86.71103	0.059278	0.202661
86.75103	0.128248	0.438455
86.79124	0.17399	0.594836
86.83141	0.224377	0.7671
86.87104	0.243495	0.832463
86.91151	0.22259	0.760991
86.95137	0.195431	0.66814
86.99123	0.189713	0.648592
87.03122	0.183102	0.62599
87.07101	0.173096	0.591782
87.11117	0.157909	0.539858
87.15131	0.145222	0.496487

Experiment

87.19117	0.137182	0.468998
87.23118	0.12396	0.423794
87.27118	0.08072	0.275964
87.31106	0.091798	0.313838
87.35106	0.069106	0.236258
87.39104	0.067676	0.231371
87.43153	0.057313	0.195941
87.47118	0.048915	0.16723
87.51115	0.163984	0.560628
87.55193	0.329797	1.127511
87.59119	0.398945	1.363915
87.63106	0.115919	0.396305
87.67104	-0.03256	-0.11132
87.7112	0.113954	0.389585
87.75129	0.10502	0.359042
87.79104	0.019076	0.065216
87.83117	0.039624	0.135465
87.87118	0.018004	0.061551
87.91103	0.01854	0.063383
87.95115	0.055705	0.190443
87.99104	0.060529	0.206937
88.03117	0.072679	0.248476
88.07116	0.096265	0.32911
88.11104	0.099838	0.341327
88.15116	0.135752	0.464111

Experiment

88.19112	0.148617	0.508093
88.23138	0.127176	0.434789
88.27226	0.145222	0.496487
88.31118	0.098409	0.33644
88.35114	0.082328	0.281462
88.3919	0.058385	0.199606
88.43116	0.039266	0.134244
88.47223	0.042125	0.144018
88.51104	0.013179	0.045057
88.55114	0.002995	0.010238
88.59112	-0.01255	-0.04291
88.63129	-0.01773	-0.06062
88.67117	-0.01648	-0.05635
88.7112	-0.0113	-0.03863
88.75103	0.009784	0.033451
88.79123	0.028367	0.096981
88.83104	0.051774	0.177004
88.87105	0.067497	0.23076
88.91115	0.085723	0.293069
88.95117	0.096979	0.331553
88.99134	0.09144	0.312616
89.03117	0.085544	0.292458
89.07103	0.074109	0.253362
89.11115	0.055169	0.188611
89.15148	0.035514	0.121416

Experiment

89.19104	0.020505	0.070103
89.23114	0.003531	0.012071
89.27124	-0.01148	-0.03924
89.3122	-0.02702	-0.09239
89.35107	-0.04239	-0.14492
89.39131	-0.05811	-0.19868
89.43113	-0.06598	-0.22556
89.47143	-0.06204	-0.21212
89.51112	-0.04811	-0.16447
89.55129	-0.0381	-0.13026
89.59141	-0.01773	-0.06062
89.63208	-0.0063	-0.02153
89.67141	0.015502	0.052999
89.71104	0.031047	0.106144
89.75104	0.041946	0.143407
89.79119	0.053739	0.183724
89.83116	0.05499	0.188
89.87103	0.045341	0.155013
89.91123	0.032834	0.112253
89.95104	0.019969	0.06827
89.99109	0.004603	0.015736
90.03164	-0.01541	-0.05268
90.07106	-0.02595	-0.08872
90.11119	-0.03435	-0.11743
90.15131	-0.0381	-0.13026

Experiment

90.19103	-0.03506	-0.11988
90.23118	-0.02702	-0.09239
90.27126	-0.01309	-0.04474
90.31103	-0.0004	-0.00137
90.35103	0.008534	0.029175
90.39128	0.013537	0.046279
90.43104	0.016932	0.057886
90.47122	0.018182	0.062162
90.51121	0.016753	0.057275
90.55116	0.012465	0.042614
90.59121	0.009427	0.032229
90.63202	0.004424	0.015125
90.67109	0.000672	0.002297
90.71123	-0.00344	-0.01175
90.75104	-0.00326	-0.01114
90.87943	0.068212	0.233204
90.91915	0.12521	0.42807
90.95901	0.161661	0.552686
90.99918	0.121994	0.417074
91.03915	0.236706	0.80925
91.07997	0.287271	0.982125
91.1195	0.303353	1.037103
91.15929	0.360351	1.231969
91.19958	0.521161	1.781747
91.24085	0.450583	1.540455

Experiment

91.27929	0.464163	1.586881
91.31972	0.544032	1.859938
91.3592	0.490607	1.677289
91.39914	0.534562	1.827562
91.43913	0.498112	1.702946
91.47917	0.492037	1.682176
91.52062	0.436825	1.493419
91.55903	0.251178	0.85873
91.599	0.401089	1.371246
91.63951	0.349987	1.196538
91.67996	0.296027	1.012057
91.7193	0.243495	0.832463
91.7592	0.146116	0.499541
91.7992	0.094478	0.323001
91.83919	0.060172	0.205715
91.88024	0.012465	0.042614
91.91909	-0.02005	-0.06856
91.95903	-0.02041	-0.06979
91.99928	-0.02023	-0.06917
92.03924	-0.04525	-0.1547
92.07915	-0.00433	-0.01481
92.11919	-0.0063	-0.02153
92.15961	0.000672	0.002297
92.199	-0.0138	-0.04718
92.23921	-0.01577	-0.0539

Experiment

92.27907	0.058564	0.200217
92.31966	0.069463	0.23748
92.35922	0.150404	0.514202
92.39919	0.287986	0.984568
92.44361	0.276193	0.944251
92.47934	0.424318	1.450658
92.51904	0.410559	1.403622
92.55919	0.495074	1.692561
92.5991	0.539208	1.843445
92.63904	0.566903	1.938129
92.67956	0.537063	1.836114
92.71902	0.596206	2.038311
92.75922	0.525628	1.797019
92.79951	0.54975	1.879486
92.83933	0.712704	2.436595
92.87924	0.497933	1.702335
92.9191	0.525985	1.798241
92.95904	0.477742	1.633307
92.99906	0.437004	1.49403
93.039	0.376074	1.285725
93.07929	0.314967	1.076809
93.11923	0.203114	0.694407
93.15918	0.197218	0.674249
93.19905	0.081256	0.277797
93.23915	0.129141	0.441509

Experiment

93.27903	-0.04972	-0.16997
93.31928	-0.04525	-0.1547
93.35939	-0.06401	-0.21884
93.39915	-0.07884	-0.26954
93.4392	-0.08742	-0.29886
93.47921	-0.04632	-0.15836
93.51908	-0.02452	-0.08384
93.55902	-0.00862	-0.02947
93.59921	0.076253	0.260693
93.63919	0.11181	0.382255
93.6796	0.135931	0.464722
93.71915	0.178099	0.608886
93.75945	0.23206	0.793367
93.79913	0.307998	1.052985
93.83915	0.347129	1.186764
93.87913	0.418243	1.429889
93.91915	0.444687	1.520297
93.96016	0.517766	1.770141
93.99913	0.453085	1.549008
94.0392	0.674467	2.30587
94.07925	0.482745	1.650411
94.11915	0.549928	1.880097
94.16009	0.584949	1.999826
94.19916	0.504723	1.725548
94.23903	0.490071	1.675457

Experiment

94.27943	0.428427	1.464708
94.31932	0.355884	1.216697
94.35901	0.328367	1.122624
94.39913	0.26583	0.908821
94.43904	0.255824	0.874612
94.47938	0.189892	0.649203
94.51917	0.16988	0.580786
94.55918	0.104126	0.355988
94.59976	0.025329	0.086596
94.63901	0.030154	0.10309
94.67901	-0.0272	-0.093
94.72073	-0.01523	-0.05207
94.75924	0.007819	0.026731
94.79918	-0.07616	-0.26038
94.83929	-0.00147	-0.00503
94.8792	0.020862	0.071325
94.9191	0.09287	0.317503
94.95904	0.111631	0.381644
94.99906	0.170416	0.582619
95.03917	0.245282	0.838571
95.0798	0.296027	1.012057
95.1191	0.340518	1.164163
95.15919	0.386259	1.320544
95.19929	0.579946	1.982722
95.239	0.505437	1.727991

Experiment

95.27945	0.429678	1.468984
95.31901	1.046475	3.577691
95.359	0.484711	1.657131
95.39901	0.418779	1.431721
95.43902	0.391798	1.339481
95.47903	0.401447	1.372468
95.51952	0.18346	0.627212
95.56267	0.3348	1.144615
95.59902	-0.39081	-1.33611
95.63899	-0.00951	-0.03252
95.67954	0.226878	0.775652
95.71902	0.3239	1.107352
95.759	0.272263	0.930812
95.79901	0.141828	0.48488
95.83948	0.218838	0.748163
95.87901	0.195967	0.669973
95.91904	0.179886	0.614995
95.95904	0.180243	0.616216
95.99909	0.163626	0.559406
96.03907	0.193287	0.66081
96.079	0.211512	0.723118
96.11933	0.249392	0.852621
96.15904	0.226521	0.774431
96.19903	0.228844	0.782372
96.24213	0.22938	0.784204

Experiment

96.27901	0.235633	0.805585
96.31902	0.228665	0.781761
96.35904	0.218838	0.748163
96.39987	0.222233	0.75977
96.43924	0.185782	0.635153
96.47901	0.102161	0.349268
96.51902	0.029082	0.099424
96.55903	0.213835	0.731059
96.59901	0.178993	0.61194
96.63902	0.194538	0.665086
96.67967	0.235455	0.804974
96.71902	0.250285	0.855676
96.75901	0.247962	0.847734
96.79912	0.288701	0.987012
96.84134	0.269582	0.921649
96.87914	0.284413	0.972351
96.91904	0.239028	0.817191
96.95938	0.287986	0.984568
96.99905	0.32265	1.103076
97.03924	0.315681	1.079252
97.07901	0.365175	1.248462
97.12161	0.303531	1.037713
97.15904	0.224555	0.767711
97.19906	0.243495	0.832463
97.23903	0.212048	0.72495

Experiment

97.27904	0.181494	0.620492
97.31903	0.152191	0.520311
97.35904	0.132358	0.452505
97.39936	0.077682	0.26558
97.43903	0.117885	0.403024
97.48088	0.013179	0.045057
97.51912	-0.00469	-0.01603
97.55924	0.081613	0.279019
97.59903	0.053382	0.182502
97.6422	0.078218	0.267412
97.68065	0.11985	0.409744
97.71904	0.15237	0.520921
97.7592	0.157194	0.537415
97.79933	0.192215	0.657144
97.83914	0.20901	0.714566
97.87916	0.154156	0.52703
97.92067	0.227414	0.777485
97.95927	0.274764	0.939364
97.99924	0.30371	1.038324
98.03917	0.202757	0.693185
98.07914	0.35231	1.20448
98.11904	0.445402	1.52274
98.15939	0.394657	1.349255
98.19983	0.258326	0.883165
98.23911	0.290845	0.994342

Experiment

98.2793	0.277444	0.948527
98.31918	0.259755	0.888051
98.35921	0.244925	0.83735
98.39907	0.247248	0.845291
98.44045	0.185068	0.63271
98.47902	0.16309	0.557573
98.51901	0.16309	0.557573
98.56122	0.020326	0.069492
98.59907	-0.0188	-0.06429
98.63951	0.162554	0.555741
98.68078	-0.0356	-0.12171
98.7191	0.041053	0.140352
98.76188	0.062673	0.214267
98.79916	0.053025	0.18128
98.83915	0.082149	0.280851
98.88038	0.090368	0.308951
98.919	0.12521	0.42807
98.96234	0.07929	0.271078
98.99903	0.144329	0.493433
99.04335	0.231167	0.790313
99.07913	0.153263	0.523976
99.11955	0.40234	1.375522
99.15913	0.158623	0.542302
99.19936	0.364996	1.247851
99.23921	0.172917	0.591171

Experiment

99.27913	0.420208	1.436608
99.31901	0.199898	0.683412
99.35929	0.304782	1.041989
99.39916	0.145937	0.49893
99.43932	0.366247	1.252127
99.48027	0.202757	0.693185
99.51949	0.15237	0.520921
99.55948	0.158623	0.542302
99.59908	0.151655	0.518478
99.63987	0.158802	0.542913
99.68063	0.163448	0.558795
99.71926	0.135395	0.462889
99.759	0.162375	0.55513
99.799	0.113775	0.388975
99.83914	-0.01362	-0.04657
99.87908	0.03873	0.132411
99.91907	0.143614	0.490989
99.95917	0.056062	0.191665
100.0037	0.067319	0.23015
100.0406	0.09144	0.312616
100.079	0.122173	0.417685
100.119	0.142542	0.487324
100.159	0.159874	0.546578
100.199	0.174883	0.59789
100.239	0.170237	0.582008

Experiment

100.2791	0.148081	0.506261
100.319	0.170237	0.582008
100.359	0.190964	0.652868
100.399	0.214728	0.734113
100.439	0.19418	0.663864
100.479	0.291202	0.995564
100.5196	0.181673	0.621103
100.559	0.28888	0.987622
100.599	0.262793	0.898436
100.6402	0.218302	0.746331
100.679	0.126104	0.431124
100.719	0.202578	0.692575
100.7603	0.058385	0.199606
100.7993	0.139326	0.476328

3.2. Discussion:

We calculate the acceleration. We do this with the end and the start speed. The formule we use is: $v_x(t) = a_x * t + v_{x0}$ (then we become the velocity in metres per second)

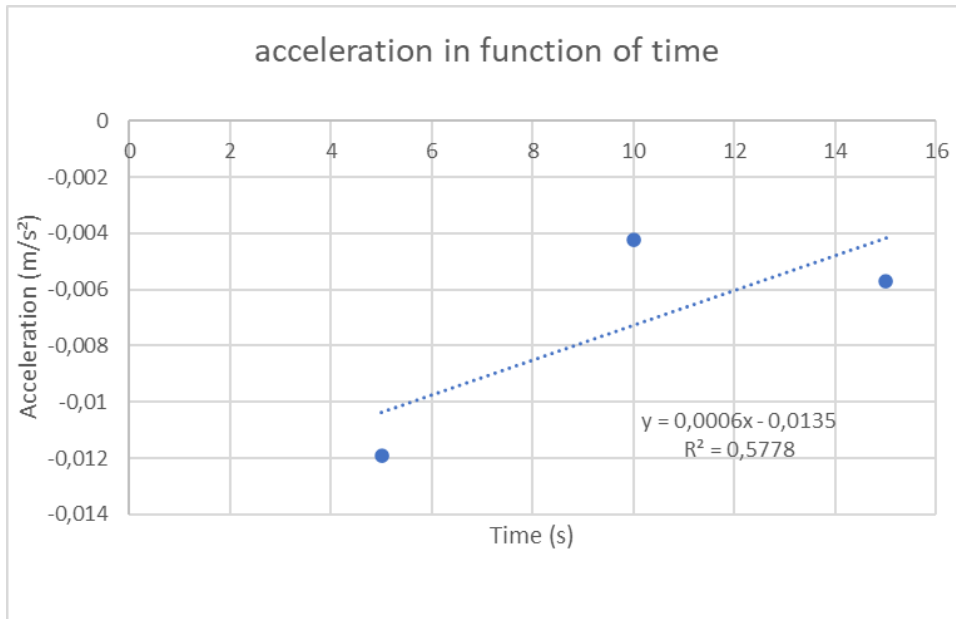
We become the acceleration : $a_x = (v_x(t) - v_{x0}) / t$ (this is in metres per square seconds)

We do this with the numbers in the table.

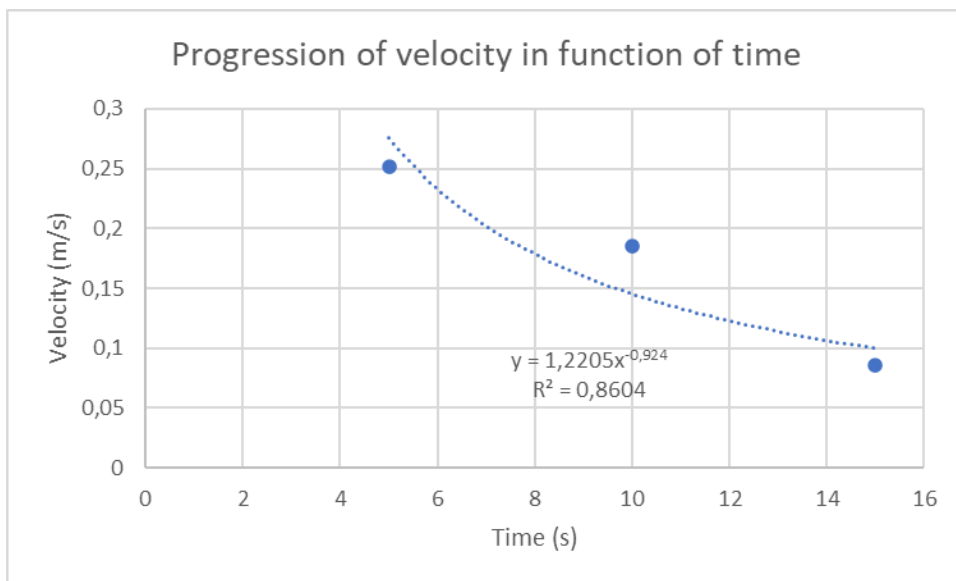
After we did 9 calculations, we became these results:

	time	acceleration	average
first measurement	5	-0.011893264	-0.011893264
second	5	-0.011893264	
third	5	-0.011893264	
first	10	-0.0043951	-0.004216467
second	10	-0.0040381	
third	10	-0.0042162	
first measurement	15	-0.001119667	-0.005703778
second	15	-0.015402067	
third	15	-0.0005896	

The velocity we use in the calculation of the acceleration, is the velocity you find in the tables of phyfox. So we use the velocity at the begin and at the end of the measurements. And with those velocities we calculate with the time (so 5, 10 or 15 seconds) the acceleration. The accelerations at 5 and 10 seconds are constant, but at 15 we see a difference. The formule we use is $a_x = (v_x(t) - v_x(0)) / t$. When we the acceleration is calculated, we calculate the average of the three measurements. This shows that the acceleration is negative because of the slowdown of the tire.



The graph shows that the acceleration is a constant unit even though we change the distance.



The graph of the velocity in function of time is descending and it's a quadratic relation.

4. REFLECTION

4.1. Conclusion: The tire will slow down after the time passes by. The acceleration stays more or less the same and the speed slows down as time advances.

4.2. Comparison of the results of the different countries

4.3. Reflection: We did a great teamwork.

Our hypothesis was correct.

5. REFERENCES