Velocity and Acceleration Lab
California Crosspoint Academy
AP Physics 1

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September 9th, 2020

Data

Table #1

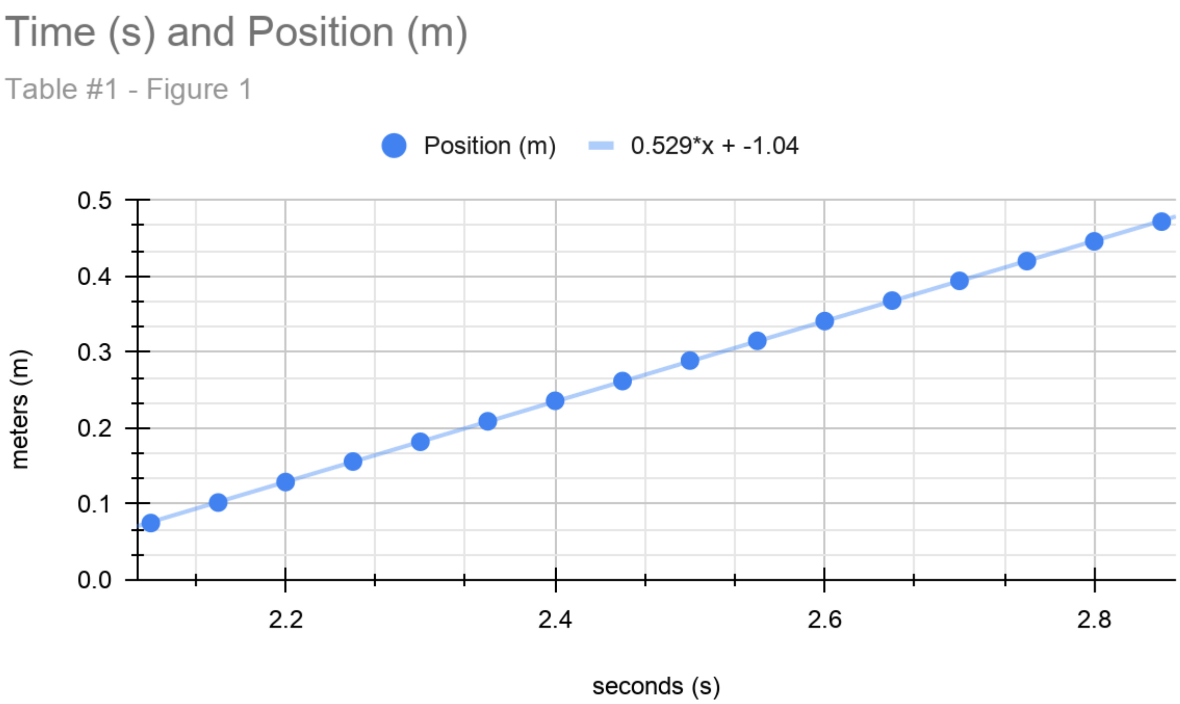
Time	Position
2.1	0.075
2.15	0.102
2.2	0.129
2.25	0.156
2.3	0.182
2.35	0.209
2.4	0.236
2.45	0.262
2.5	0.289
2.55	0.315
2.6	0.341
2.65	0.368
2.7	0.394
2.75	0.42
2.8	0.446
2.85	0.472

Table #2

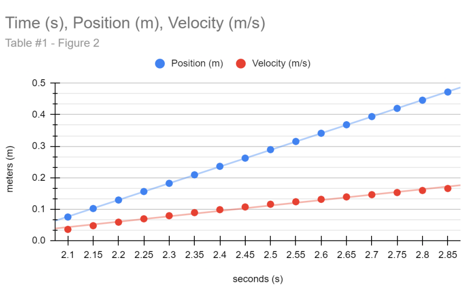
Time	Position	Velocity
0.7	0.051	0.003
0.75	0.051	0.011
0.8	0.052	0.022
0.85	0.053	0.037
0.9	0.056	0.048
0.95	0.058	0.054
1	0.061	0.068
1.05	0.065	0.077
1.1	0.069	0.083
1.15	0.073	0.093
1.2	0.078	0.107
1.25	0.084	0.118
1.3	0.09	0.124
1.35	0.096	0.138
1.4	0.104	0.148
1.45	0.111	0.154

Analysis

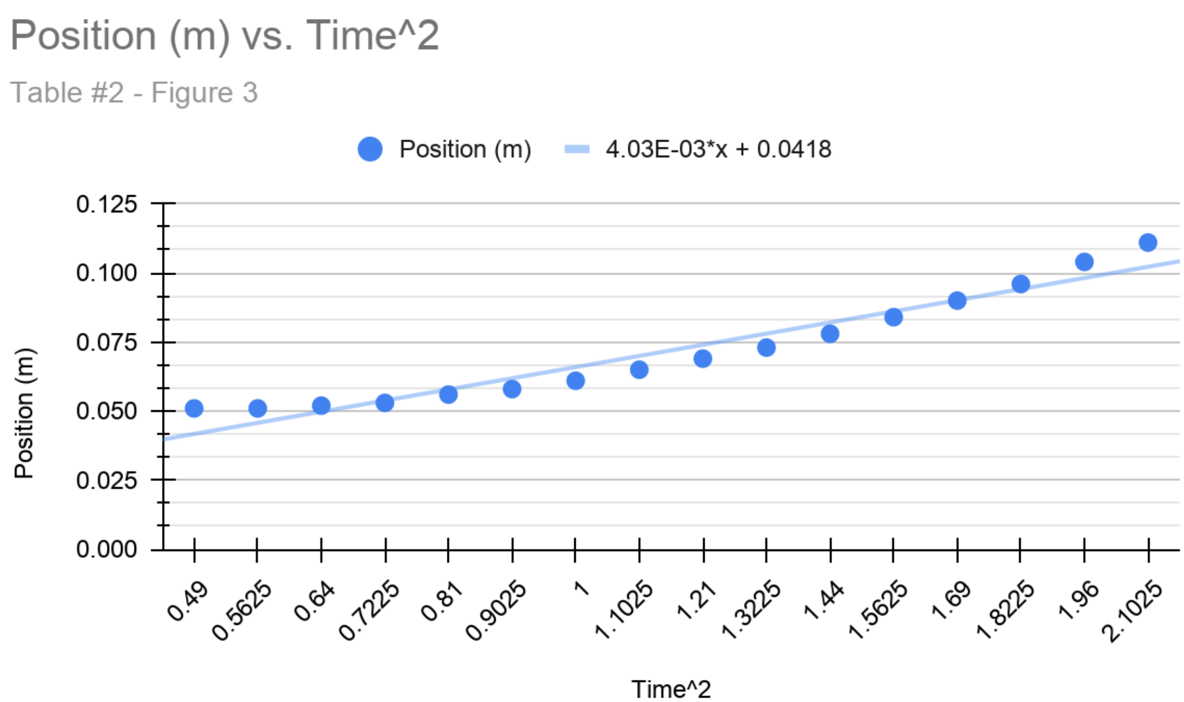
Part 1



In Figure 1, the velocity has an increasing trend. We know this because we can calculate velocity by using $v = \frac{\Delta d}{\Delta t}$. In Figure 2, velocity is graphed, and we can see that velocity is increasing. If velocity was constant, the position would be increasing at a constant rate of ~0.529m/s. We know this because of the slope in the position/time graph. If the velocity was not constant, then the velocity would be increasing in this situation.

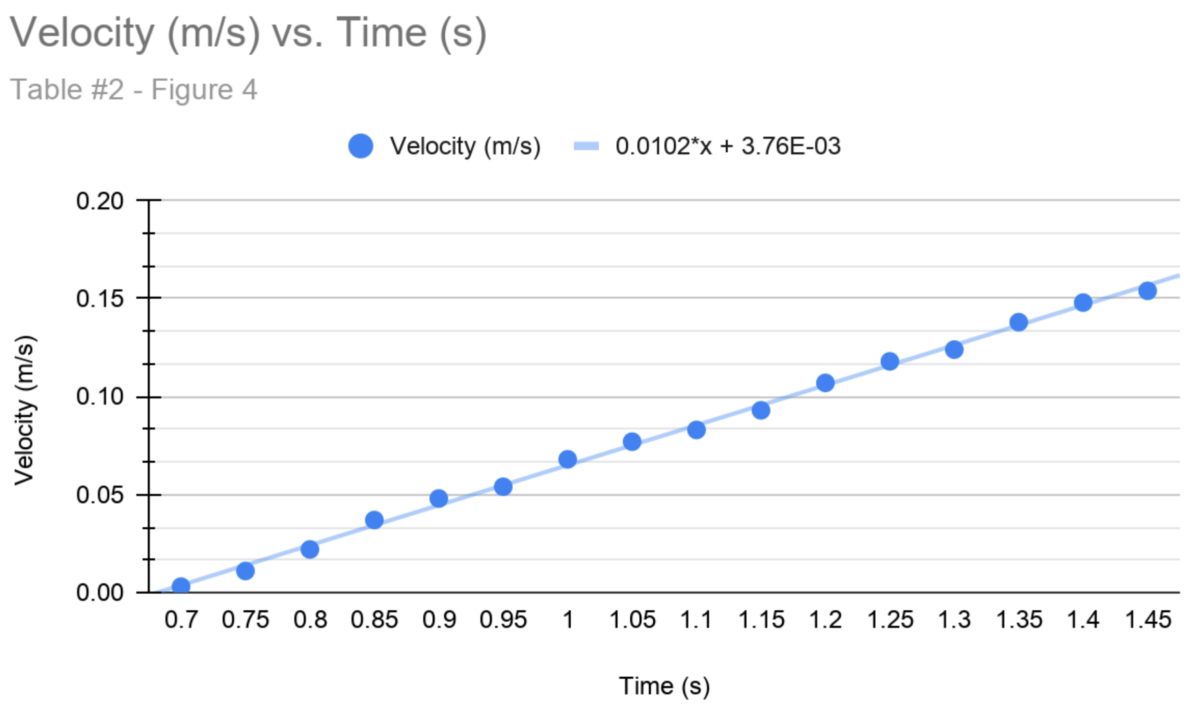


Part 2A



The acceleration has an increasing trend. We can see in Figure 3, the acceleration trend is going up. We can calculate the trend by using $a = \frac{v}{t}$. If the acceleration was constant, the acceleration would be ~0.0381m/s^2. We know this because on the first second, we can determine acceleration by using $a = \frac{v}{t}$. If acceleration was not constant, then acceleration would be increasing over time in this situation.

Part 2B



The acceleration has an increasing trend because the velocity is increasing as shown in Figure 4. If the acceleration was constant, it would still be ~0.0381m/s^2 (this is the same as Part 2A because it is the same problem). If the acceleration is not constant, then it would be increasing over time in this situation (same as Part 2B).