**Video Analysis of a Bouncing Ball to Calculate the Acceleration Due to Gravity**

**Video Analysis #1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parabola** | **RMS Dev** | **y(t)** | **Acc = 2A****(m/s2)** | **Avg Acc (m/s2)** |
| # 1 |  | y1 = At2 + Bt + C |  |  |
| # 2 |  | y2 = At2 + Bt + C |  |
| # 3 |  | y3 = At2 + Bt + C |  |

**Video Analysis #2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parabola** | **RMS Dev** | **y(t)** | **Acc = 2A****(m/s2)** | **Avg Acc (m/s2)** |
| # 1 |  | y1 = At2 + Bt + C |  |  |
| # 2 |  | y2 = At2 + Bt + C |  |
| # 3 |  | y3 = At2 + Bt + C |  |

**Video Analysis #3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parabola** | **RMS Dev** | **y(t)** | **Acc = 2A****(m/s2)** | **Avg Acc (m/s2)** |
| # 1 |  | y1 = At2 + Bt + C |  |  |
| # 2 |  | y2 = At2 + Bt + C |  |
| # 3 |  | y3 = At2 + Bt + C |  |

**Video Analysis #4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parabola** | **RMS Dev** | **y(t)** | **Acc = 2A****(m/s2)** | **Avg Acc (m/s2)** |
| # 1 |  | y1 = At2 + Bt + C |  |  |
| # 2 |  | y2 = At2 + Bt + C |  |
| # 3 |  | y3 = At2 + Bt + C |  |

**Error Analysis (from EXCEL file)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Video Analysis** | **Avg Acc (m/s2)** | **Mean Acc (m/s2)** | **% SEM** | **% Error** |
| # 1 |  |  |  |  |
| # 2 |  |
| # 3 |  |
| # 4 |  |

**Follow Up Question**

Was there a difference between % SEM and % Error? Which one represents the best error analysis for this research and why?