**Using a Graph to Calculate Acceleration**

1. Make a graph using these data points

|  |  |  |
| --- | --- | --- |
| **Interval** | **Time in seconds**  **(s)** | **Distance in meters (m)** |
|  | 0 | 0 |
| 1 |
| 0.8 | 0.1 |
| 2 |
| 1.1 | 0.2 |
| 3 |
| 1.5 | 0.5 |
| 4 |
| 1.9 | 0.8 |
| 5 |
| 2.0 | 1.0 |
| 6 |
| 2.4 | 1.3 |
| 7 |
| 2.6 | 1.5 |
| 8 |
| 2.9 | 1.6 |
| 9 |
| 3.0 | 1.7 |
| 10 |
| 3.3 | 1.8 |
| 11 |
| 3.8 | 1.9 |
|  |

1. Connect the dots on the graph with a ruler.
2. Choose 2 intervals where the car was speeding up at the beginning of the trial
   1. For example interval 1 ( 0,0-0.8, 0.1)and interval 3 (1.1,0.2-1.5-0.5)
   2. Calculate the 2 velocities for those 2 intervals
   3. Use this equation:

1. Calculate the acceleration of the interval
   1. Interval 1 will be the beginning velocity ()
   2. Interval 3 will be the ending velocity ()
   3. Time will be the end time minus the beginning time
   4. Use this Equation:

1. Repeat finding the velocity on 2 more intervals
   1. Use interval 7 and interval 11
   2. Calculate velocity for both intervals

1. Calculate the velocity for the interval
   1. Interval 7 will be the beginning velocity ()
   2. Interval 11 will be the ending velocity ()
   3. Time will be the end time minus the beginning time

1. Look at the acceleration when the car was speeding up and compare it to when the car was slowing down.
   1. A positive (+) number in acceleration means speeding up
   2. A negative (-) number in acceleration means slowing down
2. Velocity is slightly different
   1. A positive (+) number in velocity means going forward
   2. A negative (-) number in velocity means going backward
3. Use color-coding on your graph
4. Write a Summary paragraph and a Response paragraph