**Unit 3 – Activity 1b**

**Graphing Accelerated Motion**

The table below shows the position-time data for a wheel rolling down a track. To save time, the graph of *x* vs. *t* has been plotted for you.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  | | --- | --- | |  |  | | 0.0 | 0.0 | | 1.0 | 5.0 | | 2.0 | 20.0 | | 3.0 | 45.0 | | 4.0 | 80.0 | | 5.0 | 125.0 | | 6.0 | 180.0 | |

1. For each 1.0 second clock reading (1.0 s to 5.0 s) draw, in a different color, a line (secant) connecting the point before and the point after. What is the physical significance of the slope of each of these lines?
2. Calculate the slope of each of the lines you drew. Pick two points on the line. Record the coordinates of each point. Use these coordinates to calculate the slope. Show your work, including the equation for the slope.

|  |  |
| --- | --- |
| For *t* = 3.0 s copy your work from Part I | *t* = 3.0 s |
| *t* = 0.0 s (since no line can be drawn estimate the value you believe to be most probable) | *t* = 4.0 s |
| *t* = 1.0 s | *t* = 5.0 s |
| *t* = 2.0 s | *t* = 6.0 s (since no line can be drawn, estimate the value you believe to be most probable) |