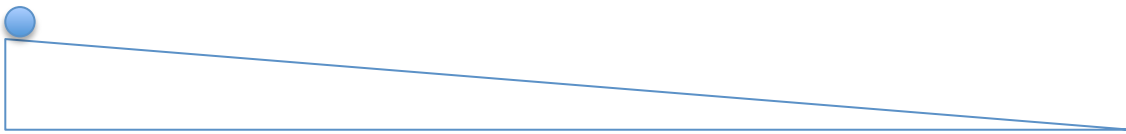


Ramp Motion

Purpose: To describe the motion of a marble as it rolls down a ramp. This is a simple recreation of Galileo Galilei’s experiment to describe motion as a ball rolls down a ramp.

Procedure:

1. Set up the ramp at an angle like indicated in the diagram below. Put a marble at the top and let it roll down. It should take the marble between 5 and 6 seconds to roll to the bottom of the ramp. If it takes less time than 5 seconds your ramp is too steep and you will need to lower the higher end. If the marble takes more than 6 seconds to get to the end you will need to make your ramp steeper.



2. Put a small piece of masking tape at the top of the ramp where you will start the marble.
3. Let the marble go (start from rest) at the mark you already made at the same time as you start a stop watch. Put another small piece of masking tape at the spot where the marble is when the stop watch reads 1.00 seconds.
4. Repeat step 3 a number of times, adjusting where the masking tape is placed until you find the same consistent spot.
5. Repeat steps 3 & 4 for
 - a) 2.00 seconds
 - b) 3.00 seconds
 - c) 4.00 seconds
 - d) 5.00 seconds.
6. Measure the distance from the starting mark to each of the other marks on the ramp and record in your data/results table.

Data/Results

Time (seconds)	Position	Change in Position	Velocity
0.00	0.00		
1.00			
2.00			
3.00			
4.00			
5.00			

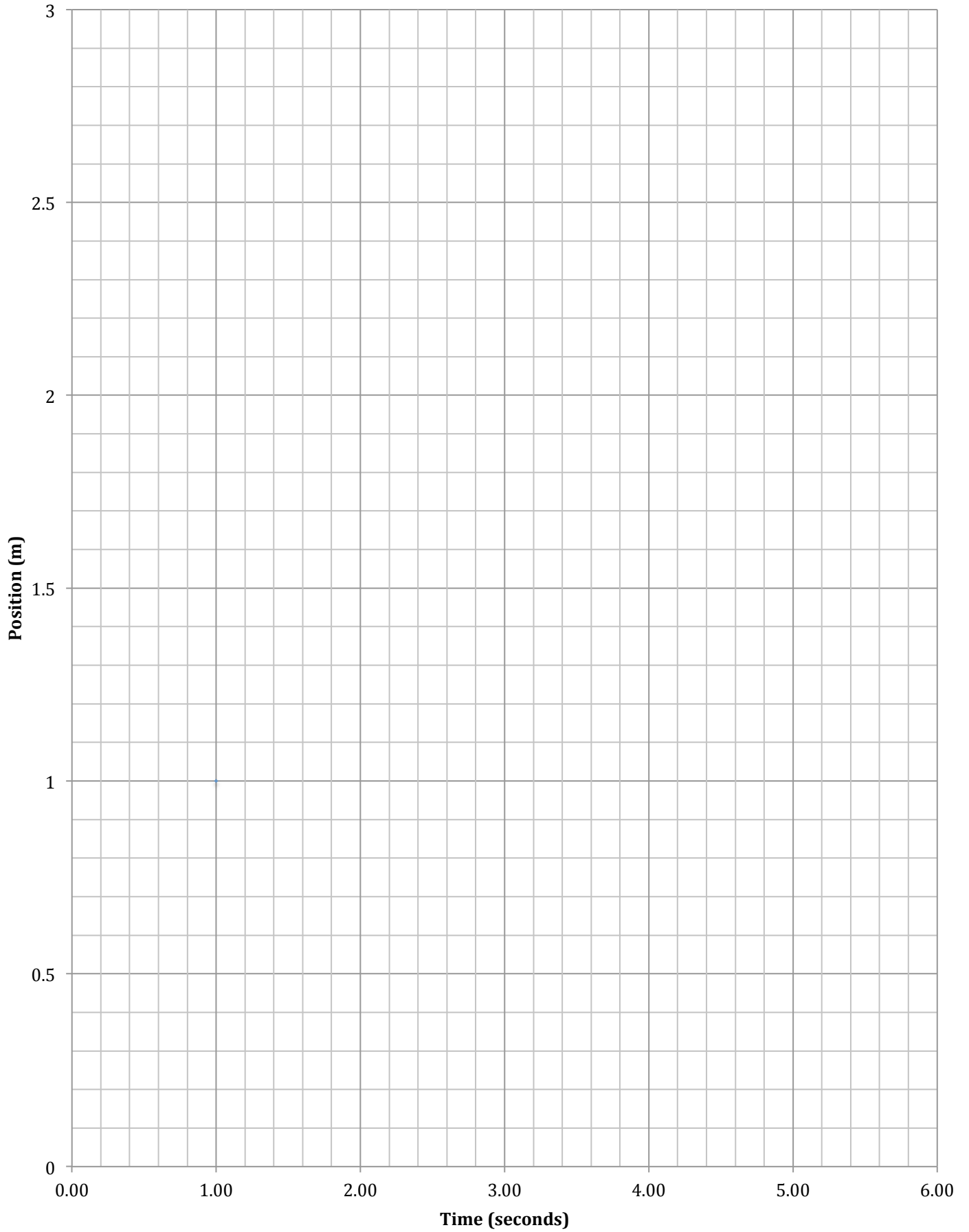
7. Calculate the change in position and the velocity for each time. **Show your work for a sample calculation in the calculation section.**
8. Make two graphs, one for position vs time and a second for velocity vs time.

Calculations:

Summary/Conclusion:

1. How does the distance (change in position) change for each time interval?
2. How does the velocity change for each time interval?
3. Why does the velocity change?
4. What is this change in velocity called?
5. Describe the shape formed by each graph.
6. What are your sources (there are two) of error? How big are they?
7. What could you do to improve your measurements for this lab?

Position



Velocity

