

Set-Up: In this part of the lab, the same length of timer tape is used, but a hanging mass replaces the washers on the string.

Marking your tape -

- 1) Lay your tape out on your table.
- 2) Starting on the end labeled B, circle the first dot clear dot and label it 0.
- 3) Count 10 dots and circle the 10<sup>th</sup> dot, labeling it 1.
- 4) Label every 10<sup>th</sup> dot (2, 3, 4, 5 etc.) until you reach the end.
- 5) Below your data table, draw how the dots are spaced.

Calculate the time -

- 6) Record the time for each **circled** dot (Each dot on the tape took 0.20 s). This is the same as the data from Part A.

Measure total displacement -

- 7) Record total displacement by measuring from the zero dot to each circled dot.

Calculate instantaneous displacement and velocity -

- 8) Calculate instantaneous displacement by measuring the distance between each circled dot and the very next dot (non circled).
- 9) Divide the instantaneous displacement by the short time interval (0.20 s).

Construct graphs -

- 10) Make two graphs of your data: Graph 1 - total time on x-axis and total displacement on y-axis, Graph 2 - total time on x-axis and instantaneous velocity on y-axis. Make a best-fit graph of each.

### Data Table

Dot #	Total Time (s)	Total Displacement (cm)
0	0	0
1		
2		
3		
4		
5		
6		
7		

Instantaneous Displacement (cm)	Instantaneous Velocity (cm/s)
0	0

Sketch the spacing of the numbered dots on the tape for Part B:

