Ticker Tape

Uniform Acceleration Investigation

Purpose: Determine the acceleration of a cart moving down an inclined plane (ramp) using ticker tape analysis.

Experimental Procedure and Analysis:

Time between successive dots = _____

1. Collect the ticker tape data. You will need about 10-12 dots. Tape the ticker tape to this sheet.
2. Complete the data table. (Follow Teachers Instructions Carefully)

Table: Analysis of Ticker Tape

A Dot #	B Time from Start (s)	C Distance from Start (cm)	D Interval Time (s)	E Interval Distance (cm)	F Average Speed (cm/s)	G Mid-Interval Time (s)
	0	0				

3. Plot a **Distance-Time** graph in Excel using columns **B and C**. Print the graph and draw a smooth curve through the data points (or do a TRENDLINE degree 2 (quadratic) fit to the curve). What does the curved line imply about the motion of the object?

```
[                                                                    ]
```

4. Plot a **Speed-Time** Graph using columns **F and G**. Using a TREND LINE draw a line of best fit through the data points and put the equation on the graph (do NOT select the "go through zero" checkbox). Write the slope of the line in the space below including the units.

Slope:
```
[                                    ]
```

The slope of the line represents...
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[                                                                    ]
```

Using the **value of the slope** (acceleration) that you found in your experiment answer the following questions:

1. If your cart was travelling at 3 cm/s and accelerated for 5 seconds, a) calculate the final speed of the cart and b) Calculate the distance travelled in this time.