Iona Prep Physics Experiment

Experiment: To examine the relationship between distance and time for an accelerated object.

In this experiment the dot timer is used almost exactly as before. The difference this time is that the tape is pulled by a mass which is falling from the table to the floor, therefore accelerating due to gravity. Friction in the system is considerable, therefore the acceleration of the mass will be less than the expected acceleration of gravity.

Procedure:
Experiment
1. Set up the dot timer and some tape at the edge of the table.
2. Attach a mass of a few hundred grams to the tape.
3. Set the timer going and release the mass, permitting it to fall to the floor.

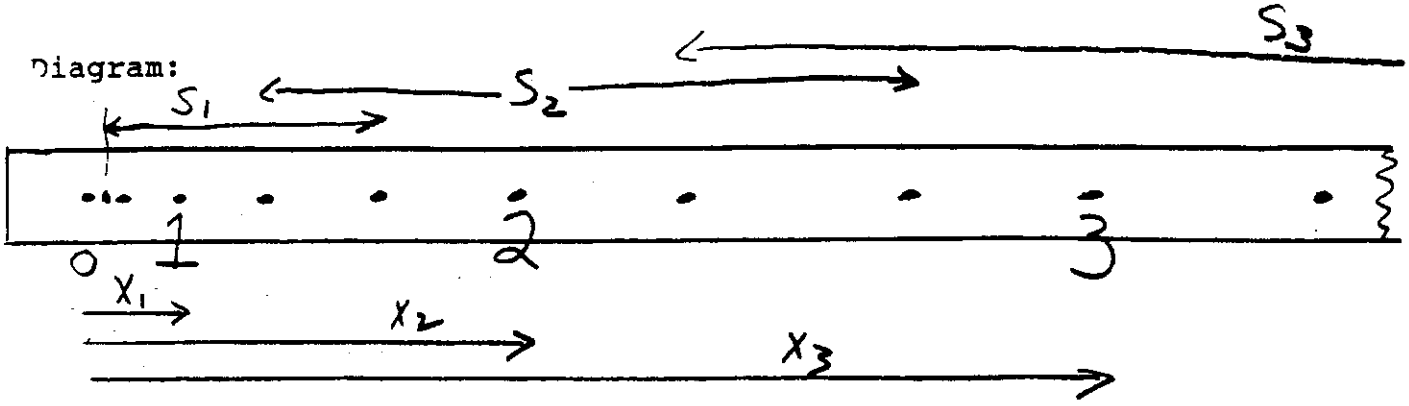
Analysis:
1. Beginning at the first dot, assign a number to every THIRD dot. The first dot is #0, the third is #1, the sixth is #2, etc.
2. Measure the distance from dot #0 to each other numbered dot. Call these distances X_1, X_2, etc.
3. Beginning at dot #1, mark off an interval of 2 dots (unnumbered) on each side, and measure this interval. Call this S_1. Repeat for all numbered dots calling intervals S_2, etc.

Refer to the diagram of the tape and the data table in the previous experiment. The method here is exactly the same, only the numbers are different.

4. Draw two graphs as follows:
(A) Time (in seconds) along the x-axis. Distance from start along the y-axis.
(B) Time (in seconds) along the x-axis. Velocity in interval along the y-axis.

Conclusions:
BASED ON YOUR GRAPHS, what conclusions can you come to about the speed and acceleration of the mass during the time of the experiment?

Diagram:



Dot #	Time (sec)	Distance From Start (cm) [Xn]	Length of Interval (cm) [Sn]	Velocity during Interval (cm/sec) [Sn*15]
1	0.05			
2	0.10			
3	0.15			
4				
5				
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