

Name _____
Regents Physics
Period _____

Date _____
Lab Activity #5R (50 pts)
Mrs. Nadworny

Partners:

Due Date _____

Rolling Along

NO Lab Write-Up Required

Purpose To investigate the motion of a steel ball rolling down an incline graphically

Materials

- Steel ball
- Inclined track
- 6 rubber bands
- 5 textbooks
- Meterstick

Procedure

1. Prop the track on one end using the books.
2. Allow the steel ball to roll down the track and describe its motion in the space below.
 - o Observations: (2 pts)

3. Starting from the high end, place rubber bands around the track so that they are equally spaced over the length of the track. Sketch what your track looks like now (draw a side view).
 - o Sketch: (3 pts)

4. Start the ball at the first rubber band and allow it to roll down the track.
5. Note the time it takes the ball to travel over each interval. Do this by listening for the “thuds” of the ball rolling over the rubber bands.
6. Note your observations in the space below.
 - o Observations: (2 pts)

- o Independent Variable: (2 pts) _____
- o Dependent Variable: (2 pts) _____

7. Check your work before moving onto the next step.

8. Now adjust the spacing of the rubber bands so that the steel ball crosses them in equal time intervals. The “thuds” that you hear should be evenly spaced out in time. Sketch what your track looks like now (draw a side view).

o Sketch: (3 pts)

o Independent Variable: (2 pts) _____

o Dependent Variable: (2 pts) _____

9. Check your work before moving onto the next step.

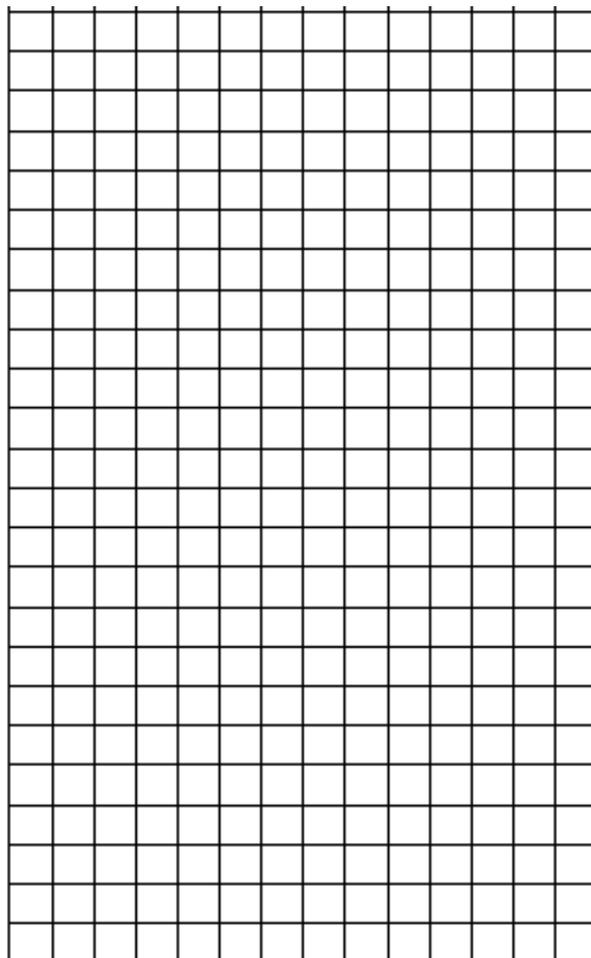
10. Measure the total distance, to the nearest tenth of a centimeter, between the top rubber band and the other bands. Record your data in the table below.

Data Collection (10 pts)

Time (thuds)	0	1	2	3	4	5
Distance (cm)	0					

Data Processing (10 pts)

- Create a distance versus time graph of your data.
 1. Title your graph with an appropriate title.
 2. Label each axis with the appropriate variable and unit.
 3. Mark an appropriate scale according to your data.
 4. Plot each data point.
 5. Draw a best fit curve.



Questions (4 pts each)

1. What is the type of relationship that you graphed?
2. Write the general equation of this relationship.
3. Why does the data have this shape?