

Name: _____

Date: _____

Procedure:

1. Setup an inclined plane at a certain angle and record in the data table.
2. Place a ball near the top of the ramp and record the time needed for it to roll the length of the ramp.
3. Measure the distance the ball rolls down the ramp and record this value.
4. Repeat for five different angles

Data:

The length of the slope is _____ m

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
Angle of inclined plane	_____	_____	_____	_____	_____
Time of travel	_____	_____	_____	_____	_____

Calculations:

1. Calculate $\sin \theta$ for each of the angles above.
2. Use trigonometric functions to determine the vertical height the ball drops for each trial.
3. Determine the acceleration in each trial, based on the vertical height and the time it takes for the ball to fall.
4. Construct a graph of Acceleration vs. $\sin \theta$ and draw the best-fit line.

Analysis/Conclusion:

Extrapolate the best-fit line to $\sin \theta = 1$. What is the angle of the incline at this point? What should the value for acceleration be at this point? Perform a percent error calculation and explain reasons for a difference.