

# PENDULUM PROBLEM

[WWW.MAXWELLMATH.SYNTHASITE.COM](http://WWW.MAXWELLMATH.SYNTHASITE.COM)

Step One: Change your friction slider more than half.

Step Two: Change your time setting in the right column to  $1/4^{\text{th}}$  time. Then press Pause/Play button. Next, move your pendulum between 70 and 80 degrees. Record this measurement in the table below.

Step Three: Your goal is to measure how far the pendulum swings the first time. To do this, press the play button, and hit pause as soon as the pendulum starts to change direction. Record the angle in your chart below (it will be negative). Do this for five swings.

Step Four: Complete the third column of the chart, showing the distance of each swing.

Step Five: Write a geometric explicit formula for your data. Use this equation to predict the length of the  $14^{\text{th}}$  swing. How close was your prediction to the actual swing?

Step Six: What is the total distance the pendulum has travelled after 5 swings? Predict how far it has travelled once it has stopped.

Swing	Degree	Distance
0		
1		
2		
3		
4		
5		
<b>Explicit Formula:</b>		

Prediction of  $14^{\text{th}}$  Swing: \_\_\_\_\_

Actual  $14^{\text{th}}$  Swing: \_\_\_\_\_

Sum of first five swings: \_\_\_\_\_

Prediction of distance travelled once the pendulum has stopped \_\_\_\_\_