**Centripetal Force Slinky Lab**

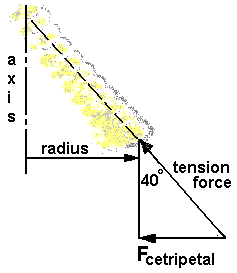
Slinkys can be used to demonstrate centripetal force. Newton's first law says that an object will continue in motion **in a straight line** unless a force acts to change the motion. When the motion of a Slinky is in a circle, the force is named the Centripetal Force. This Centripetal force is a part or component of the tension force that supports the slinky as it swings around in a circle and it equals:

F (centripetal) = ((mass\*velocity 2 )/radius) = 4\*(pi2)\*mass\*radius/T 2

In an experiment, one measures the angle of swing of the slinky [in this example about 40 degrees], the period or the time for one revolution, called T, and the radius.

the angle = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

the period, T = \_\_\_\_\_\_\_\_\_\_\_\_\_

the radius, R = \_\_\_\_\_\_\_\_\_\_\_\_\_  
  
AN EXPERIMENT:  
F (centripetal) experimental = m\*g\*tan(angle)  
F (centripetal) theoretical = 4\*(pi2)\*m\*radius/T 2   
The mass, m, is the same in each case!

Does F (centripetal) experimental = F (centripetal) theoretical?  
Show your work!

% of error = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_