

AP Physics C Lab #13 — Physical Pendulum

Name _____

Grade _____

A physical pendulum is an object that is allowed to swing about some point of the object that is not its center of mass. If the object is displaced from its equilibrium position by an angle θ the physical pendulum experiences a restoring torque of

$$\tau = -mgd \sin \theta$$

where d is the distance from the point of rotation to the center of mass.

Objectives: To derive an expression for the period of a physical pendulum using a differential equation.
To perform an experiment to measure the moment of inertia I of a physical pendulum.
To compare the experimental result for I to the calculated result.