**Energy PHYS 201L**  **Name:**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Partner(s):** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Day/Time:\_\_\_\_\_\_  
Refer your textbook (<https://openstax.org/books/college-physics/pages/7-introduction-to-work-energy-and-energy-resources>) and answer the following questions:

1. Define kinetic energy (KE) using words and express it using an equation.

1. Define gravitational potential energy (PE) using words and express it using an equation.

1. What is mechanical energy (ME)?

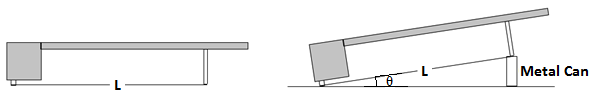
1. State the principle of conservation of mechanical energy?
2. State the SI unit for energy and state whether energy a scalar or vector?

**DATA** (Use SI units)

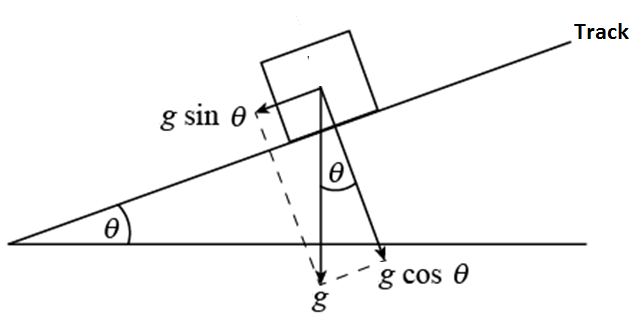
Mass of the cart = M = \_\_\_\_\_\_\_ Flag-Width of the card on the cart = \_\_\_\_\_\_\_\_\_\_  
 (This will be entered during Timer Set up with Capstone)  
Starting position = \_\_\_\_\_\_\_\_\_ Initial velocity = 0 Accel. due to gravity = g = 9.8 m/s2

|  |  |  |
| --- | --- | --- |
| Photogate Position (m) | Height, *h* (m) | Velocity, *v* (m/s) |
| 1.55 |  |  |
| 1.45 |  |  |
| 1.35 |  |  |
| 1.25 |  |  |
| 1.15 |  |  |
| 1.05 |  |  |
| 0.95 |  |  |
| 0.85 |  |  |
| 0.75 |  |  |
| 0.65 |  |  |
| 0.55 |  |  |
| 0.45 |  |  |
| 0.35 |  |  |
| 0.25 |  |  |

**Angle of Incline** Collect the data necessary and calculate the angle of incline, θ.



θ = \_\_\_\_\_\_\_\_\_\_\_



From the Excel data table, Mechanical energy = ME =\_\_\_\_\_\_\_\_\_\_\_

Acceleration along the track from Graph, a =\_\_\_\_\_\_\_\_\_\_

Acceleration along the track, using g and θ, a = \_\_\_\_\_\_\_\_\_\_\_%Difference =\_\_\_\_\_\_\_\_\_\_