***DevilPhysics***

***AP Physics***

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Period: \_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Baddest Class on Campus***

**BALLISTIC PENDULUM EXERCISE**

* Measure the deflection angle of the mechanism for three trials and average them.
* Use the deflection angle to determine the height gained by the ball and pendulum.
* Use conservation of energy to determine the velocity of the ball and pendulum after the elastic collision.
* Use conservation of momentum to determine the velocity of the ball prior to the elastic collision.
* Use conservation of energy to find the spring constant of the spring.

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| --- | --- |
| Mass of ball (mb/g) | 7.64 |
| Mass of the pendulum (mp/g) | 78.57 |
| Length of pendulum arm (L/m) | 0.23 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Spring (x/cm) | Trial 1 θ° | Trial 2 θ° | Trial 3 θ° | Average | Velocity (vb/ m/s) | Spring Constant (k/ N/m) |
| 2.50 |  |  |  |  |  |  |

