**Carleton University**

**Laboratory Report**

**Course #:** PHYS1003-A **Experiment #: 04**

**Atwood’s Machine**

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**Lab Period:** A5

**Partner:** Xintong Zhao

**Station #:** 14

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Purpose

The purpose of this lab is to determine the torque due to friction on the pulley.

Theory

𝐼𝛼=𝑇2𝑟−𝑇1𝑟−𝛤

I is the rotational inertia of the pulley, T1 and T2 are the two tensions from the masses, with T2 being the larger force, r being the radius of the pulley, and 𝛤 is the frictional torque.

Apparatus

* Mass with iron insert
* Mass
* 10 washers
* Scale (0.02g)
* Meter stick
* Vernier Caliper (0.05cm)
* Timer (0.02s)

Observations

See attached tables and graph

Calculations

𝜎𝛥𝑚=𝜎𝑀2+4𝜎𝑚12+4𝑁2𝜎𝑚𝑤2

𝒔𝒍𝒐𝒑𝒆=𝒈𝟐𝒉𝑴+𝑰𝒓𝟐

𝒊𝒏𝒕𝒆𝒓𝒄𝒆𝒑𝒕=−𝜞𝟐𝒉𝒓𝑴+𝑰𝒓𝟐

Results

Discussion

a