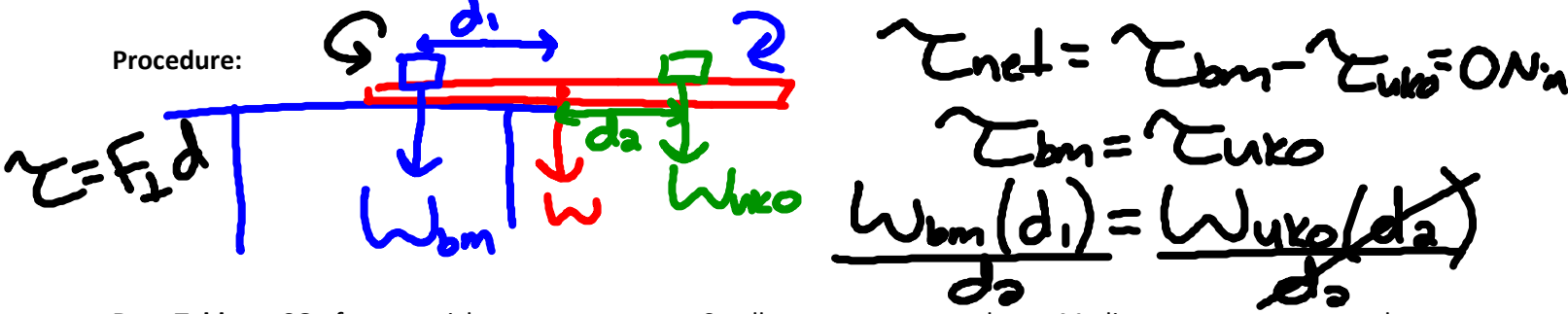
Name: _____ Hr: _____

Balance Lab

Purpose: to use the principles of torque and static equilibrium to find the mass of a few unknown objects.

Procedure:



Data Table: CG of meter stick: _____ cm Small mass: _____kg Medium mass: _____ kg

Unknown Object #	Measured Mass of UKO	Balance mass Used	Position of balance mass used	Position of UKO	Position of fulcrum
	(kg)	(kg)	(cm)	(cm)	(cm)

Calculations: Show sample calculations for ONE TRIAL or unknown object. Include formulas, algebra, plugged in numbers, units, and circled answers.

- Distance to balance mass used (from fulcrum).
- Distance to unknown object (from fulcrum).
- Weight of balance mass used. (If you know the mass, how do you calculate the weight?)
- Weight of unknown object.
  - The balancing meter stick is in static equilibrium. Set up a net torque equation and use it to solve the weight of the unknown object.
- Mass of the unknown object. (If you know the weight, how do you calculate the mass?)
- Percent error. (Measured mass is the accepted value and calculated mass is the experimental value.)

Results:

Unknown Object #	Distance to mass used	Distance to UKO	Weight of mass used	Calculated Weight of UKO	Calculated Mass of UKO	Percent Error
	(m)	(m)	(N)	(N)	(kg)	%

Questions:

1. Where is the center of gravity of your balanced meter stick? How do you know?
2. Is the fulcrum closer to the lighter or heavier object? Why?

Discussion:

- What range of % errors did you find in this lab?
- List and briefly describe two ways that inaccurate or imprecise measurements might have contributed to this error.