

Lab Partners: 1. _____ 2. _____ 3. _____

PURPOSE: To use balanced torques to find the center of gravity of a loaded meter stick.

PROCEDURE: See other side.

APPARATUS: See other side. Neatly copy drawing in space below with following items labeled: F_1 , F_2 , d_1 , d_2 , center of gravity (c.g.) , and fulcrum (f).

DATA and RESULTS:

NOTE: SHOW ALL CENTIMETER MEASUREMENTS AND CALCULATIONS BELOW TO NEAREST TENTH OF A CENTIMETER (NEAREST 0.1 cm). SHOW ALL NEWTONS TO NEAREST HUNDREDTH (0.01 N).

Weight of loaded meter stick, F_2_____N

	TRIAL1	TRIAL2	TRIAL3
Suspended Weight, F_1_____N	_____N	_____N	_____N
Position of F_1_____cm	_____cm	_____cm	_____cm
Position of Fulcrum....._____cm	_____cm	_____cm	_____cm
Distance, Load to Fulcrum, d_1_____cm	_____cm	_____cm	_____cm
Distance, C.G. to Fulcrum, d_2_____cm	_____cm	_____cm	_____cm
AVERAGE			
Calculated Position of Center of Gravity_____cm	_____cm	_____cm	_____cm
_____cm			

Experimental/Actual balance point of meter stick....._____cm

SAMPLE CALCULATIONS:

$$d_2 = \frac{F_1 d_1}{F_2} = \frac{(\quad \text{N})(\quad \text{cm})}{(\quad \text{N})} = \quad \text{cm}$$

$$\% \text{ Error} = \frac{| \text{C.G. actual} - \text{C.G. calculated} |}{\text{C.G. actual}} \times 100 = \quad \%$$

CONCLUSION: To produce equilibrium when the meter stick was balanced, a clockwise torque exactly balanced a _____ torque. The calculated center of gravity was _____cm. The actual center of gravity found by balancing the stick was _____cm. The % Error was _____%.