# Lab 10: Torque

Experiment for Physics 211 and 225 Lab at CSUF

## What You Need To Know:

## What You Need To Do:

### Part 1 - Center Of Mass

Balanced Pivot Clamp Location:

### Part 2 - Single Torque

Describe what happens and explain why in terms of what has been discussed so far.

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **P a r t** | **Counterclockwise Torques** | | | | | | | **Clockwise Torques** | | | | | | | **% Diff.** | |
| **1st Torque** | | | **2nd Torque** | | | **Total Torque (Nm)** | **1st Torque** | | | **2nd Torque** | | | **Total Torque (Nm)** |
| **F (N)** | **r (m)** | **τ (Nm)** | **F (N)** | **r (m)** | **τ (Nm)** | **F (N)** | **r (m)** | **τ (Nm)** | **F (N)** | **r (m)** | **τ (Nm)** |
| **3** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table – Parts 3 to 6 Data

How many forces are acting on the meter stick? Draw a diagram of the meter stick showing each force vector acting on it. Place each vector in the approximately correct location as well.

Question 1 Diagram



If the location of the fulcrum is taken as the reference point (this will be the case for the entire lab), how many torques are acting on the meter stick? Why is this number different than the number you wrote for the answer to **Question 1**?

### Part 4 - C of M as Torque

How did you know where to place the hanger to balance the stick? Explain in detail using torques.

### Part 5 - Multiple Torques on a Side

Part 5 – Drawing 1

Part 4 – Drawing 1

### Part 6 - Mixin’ It Up

Part 6 – Drawing 1

### Part 7 – Calculating Tension

Part 7 – Drawing 1

## Conclusion

Follow the lab report guide to write a conclusion on this lab.

Submit any excel or graphical analysis data your instructor requests along with your report.

Conclusion