

METR4202 -- Robotics

Tutorial 4 – Week 4:

Pin-Point Robot Arm & Dynamics Practice

Objective

This tutorial is reserved for:

- last-minute questions regarding Lab 1 (which is due next week)
- reviewing dynamics

Reading

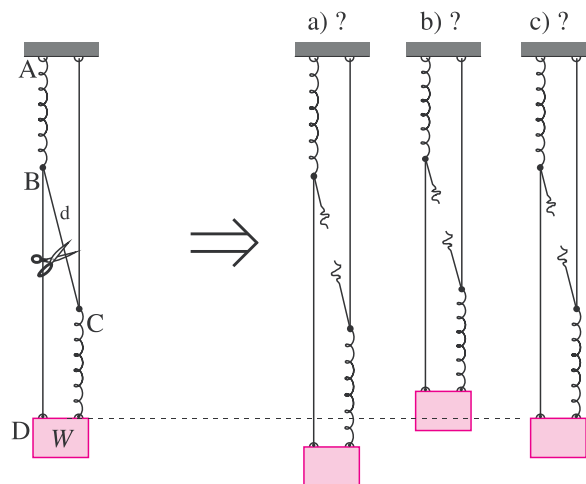
Please visit <http://ruina.tam.cornell.edu/Book/>

From there please visit/download, [*Introduction to Statics and Dynamics*](#).

Please start by reading the **blue** and **grey** boxes from pages 16-24.

Questions

1. Let's practice Free Body Diagrams by considering the problem of cutting the cord when one might have too much rope, such as in a system of two spring and three ropes.



Which case will prevail at steady-state? (a) the weight will fall, (b) the weight will rise, or (c) the weight will do stay-the-same.

Please visit **p. 341** for a detailed description and explanation.

2. Please review **all** of Chapter 18 (pp. 934-1003).
In particular, do sample problems 18.7 (“A puck sliding on a frictional rotating table”) and 18.8 (“A collar sliding on a frictional rod”).
3. For fun, review Appendix B (pp. 1016-1024) and Appendix A (pp. 1004-1015)
(Feel free to share Appendix B with any friends in grade-school physics or ENGG 1200, especially those that are stuck with Coulomb friction and want a more dynamic explanation than μ_s and μ_d).