Science Virtual Learning

MPI Physics
Rotational Dynamics 3: Equilibrium 1
April 21, 2020

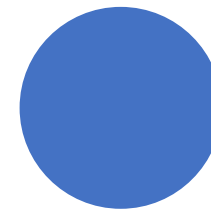Lesson: MPI Rotational Dynamics 3 – Equilibrium 1
April 21, 2020

Objective: To practice using the equilibrium conditions to solve the "tipping problem"

- This video goes over the idea of equilibrium again, and uses it to solve the "tipping problem"

- It was originally made for C section, so ignore any references to that

https://youtu.be/_m0wqWrCqOA

_____

Video: Equilibrium Lesson 1

A 10.0 m long board of mass 50.0 kg is supported by two stands, the first 4.00 m from the left end, and the second 7.00 m from the left end. A 60.0 kg person is standing on the board, directly above the first support stand. He then begins walking slowly to the left. How far does he walk before the board begins to tip?

_____

Example from the Video
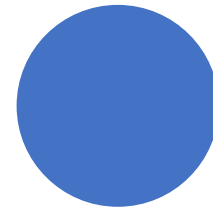
Homework

An 8.00 m long board of mass 30.0 kg can rotate about a hinge on its left end. A 20.0 kg mass sits on the board 2.00 m from the hinge. A wire is attached to the right end of the board, and pulls straight upward. How much force must the wire apply to the board to hold it stationary?

- Try to solve the problem yourself, then watch the solution video:
- https://youtu.be/ze_HKcrYrtE

That's it!