



# Science Virtual Learning

## MPI Physics

### Rotational Dynamics 4: Equilibrium 2

April 22, 2020



Lesson: MPI Rotational Dynamics 4 - Equilibrium 2  
April 22, 2020

**Objective: To use equilibrium to analyze the forces on stationary objects that are not horizontal**

- This video goes through an example of using equilibrium to analyze the forces on a stationary object that is tilted at an angle.

[https://youtu.be/39\\_kEjXn6lk](https://youtu.be/39_kEjXn6lk)

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Video: Equilibrium Lesson 2



A cane of mass 1.20 kg is 1.30 m long. The bottom rests on a table top, and is shoved against a wall. A wire is attached to the end of the cane, and is used to lift the cane 35.0 deg. The wire makes a 50.0 deg angle with the cane. Find the tension in the string, the normal force of the table, and the force exerted by the wall on the cane.

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Example from the Video



## Homework

A castle has a 10.0 m long drawbridge hinged at the bottom, and is lifted by a chain attached to the end. When the drawbridge is lifted to a  $20.0^\circ$  angle, the chain exerts a 14900 N force at an angle of  $60.0^\circ$  above the horizontal. What is the mass of the drawbridge?

- Try to solve the problem yourself, then watch the solution video here:
- <https://youtu.be/RYuqli5Ntw8>



That's it!

