

# Equilibrium Lesson 1

## Single Unknown Force

MPI Physics 240 (C Section)  
and 210 (A&D Section)

Dr. Clothier

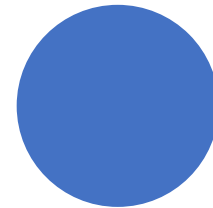
Independence MO School  
District

- Watch this here video:

[https://youtu.be/\\_m0wqWrCqOA](https://youtu.be/_m0wqWrCqOA)

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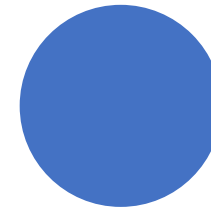
Video: Equilibrium Lesson 1



- This is a typed out version of the example discussed in the video:
- 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?

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## 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 here:
- [https://youtu.be/ze\\_HKcrYrtE](https://youtu.be/ze_HKcrYrtE)
- That's it!