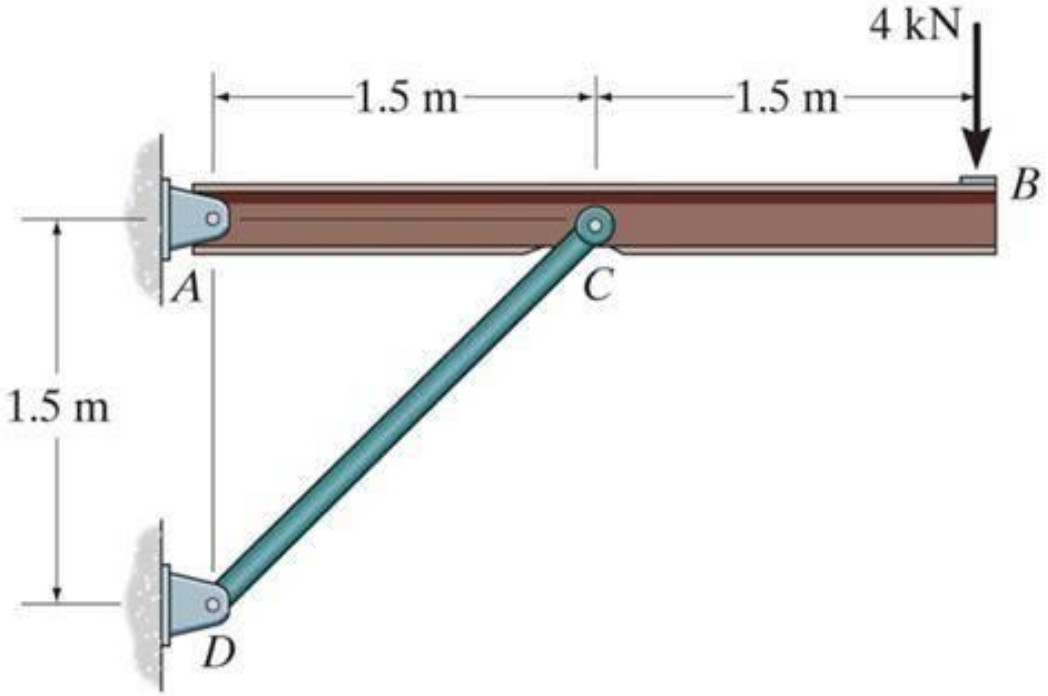
To do ...

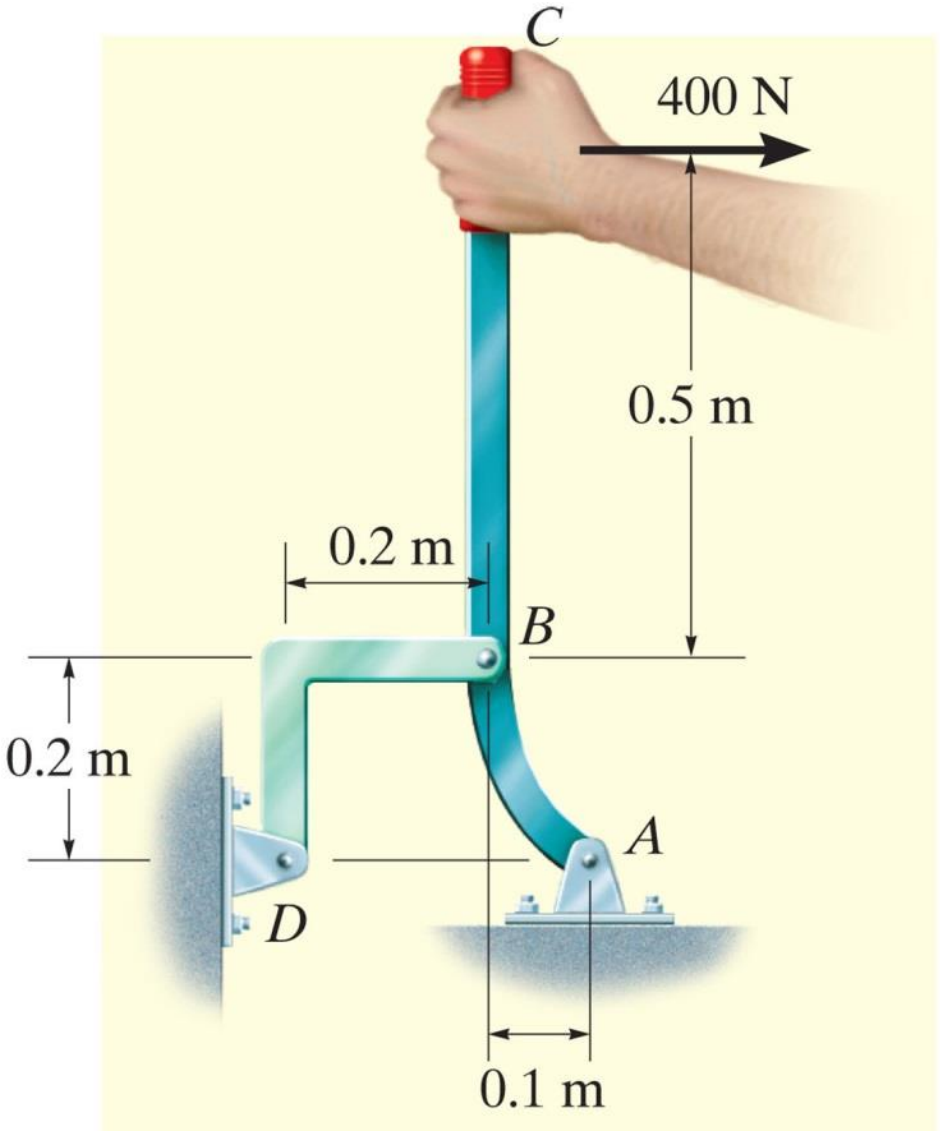
- Enter your student netID in Mastering Engineering **DUE Monday, Oct 2**

- **Quiz 3 – in class – Monday Oct 2**

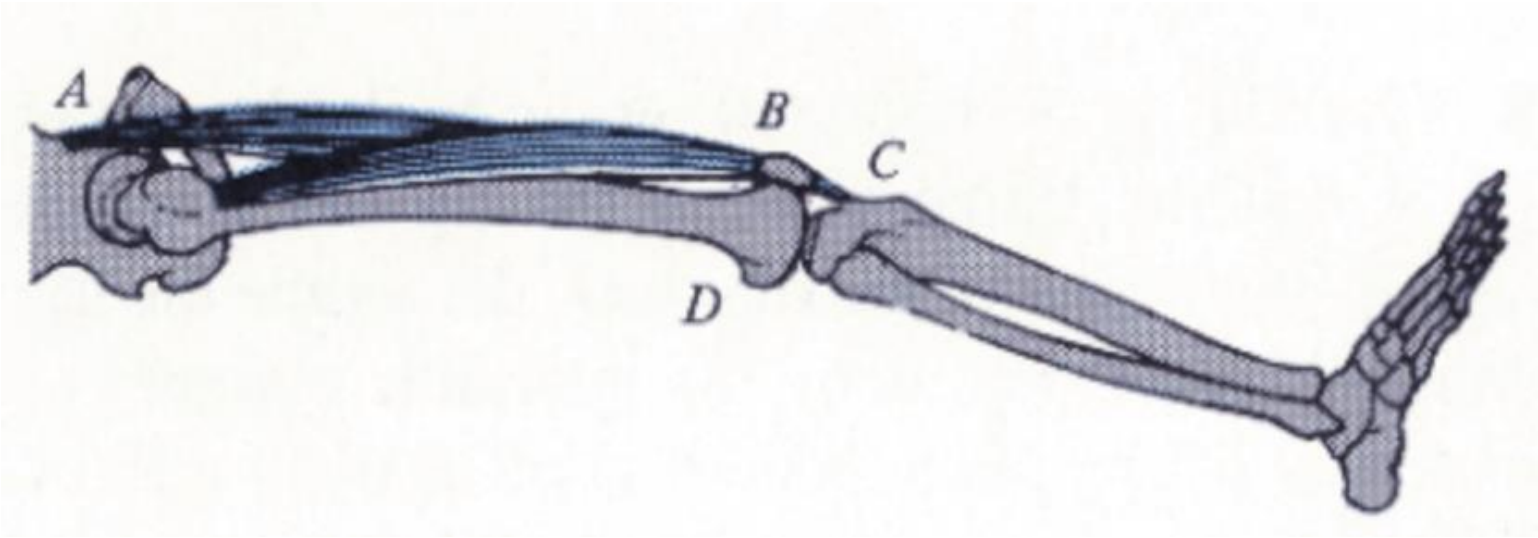
- HW 10 PL due **Tues**
- HW 11 due **Thurs**



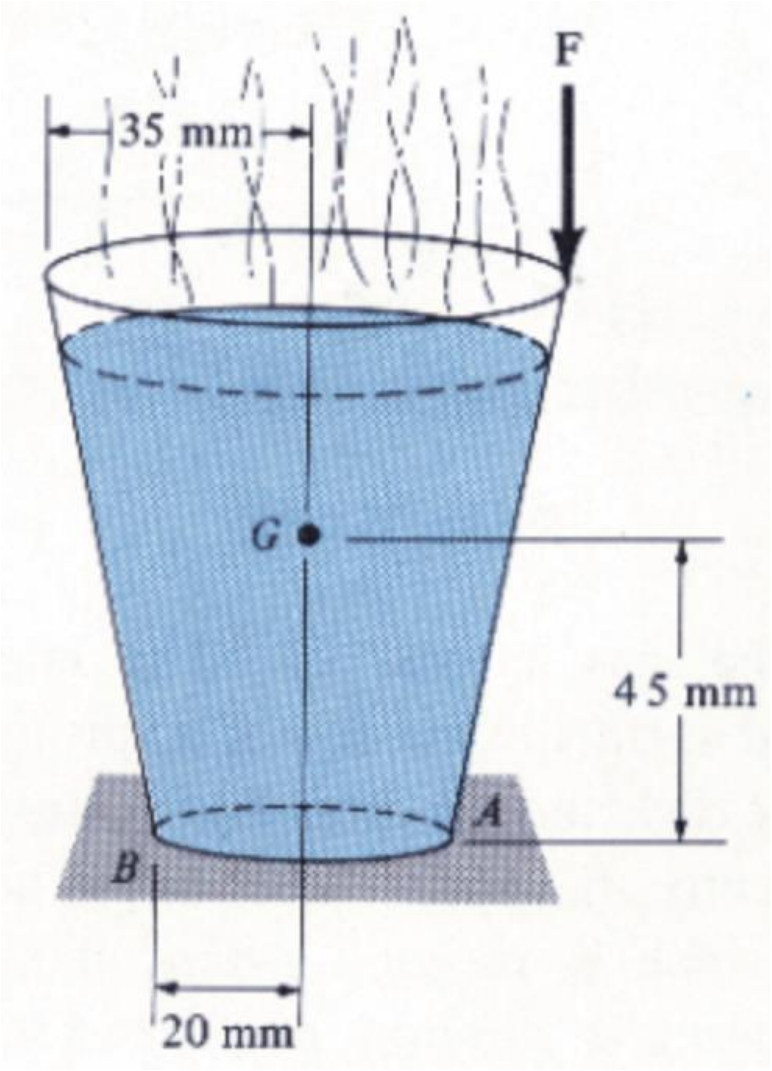
Given the 4kN load at B of the beam is supported by pins at A and C. Find the support reactions at A and C.



The lever *ABC* is pin supported at *A* and connected to a short link *BD*. If the weight of the members is negligible, determine the reaction forces at pins *D* and *A*.



A skeletal diagram of the lower leg is shown. Model the lower leg and determine the tension T in the quadriceps and the magnitude of the resultant force at the femur (pin) at D in order to hold the lower leg in the position shown. The lower leg has a mass of 3.2 kg and the foot has a mass of 1.6 kg.

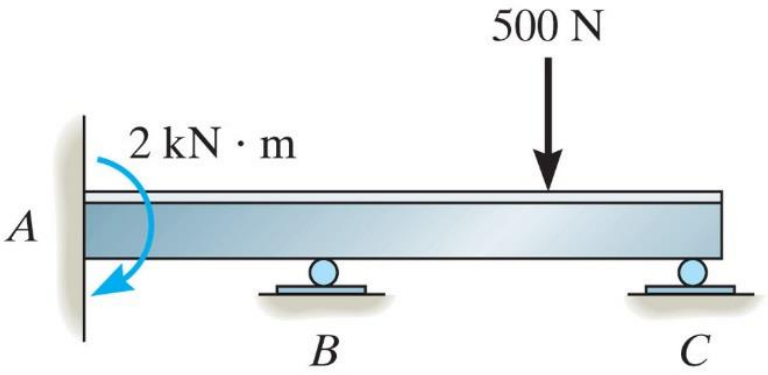


The cup is filled with 125 g of liquid. The mass center is located at G. If a vertical force F is applied to the rim of the cup, determine its magnitude so the cup is on the verge of tipping over.

Constraints

To ensure equilibrium of a rigid body, it is not only necessary to satisfy equations of equilibrium, but the body must also be properly constrained by its supports

- **Redundant constraints**: the body has more supports than necessary to hold it in equilibrium; the problem is STATICALLY INDERTERMINATE and cannot be solved with statics alone



- **Improper constraints:** In some cases, there may be as many unknown reactions as there are equations of equilibrium. However, if the supports are not properly constrained, the body may become unstable for some loading cases.