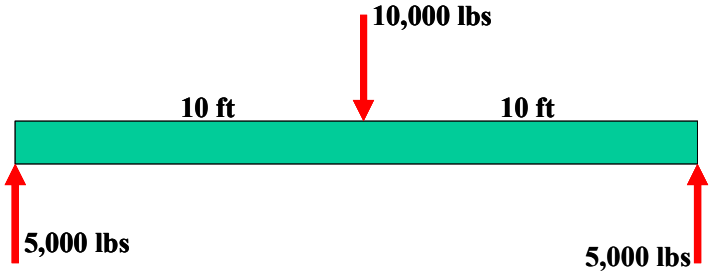
Problem Set #5 *Due October 10th*
3.11 Fall 2003

(It may help to think first of doing a free body diagram for each cantilever or beam)

Problem #1 – warm up problem (1 pt)

A *simple* beam is loaded & supported as shown in the Figure below. For this beam, draw the complete shear force and bending moment diagrams.

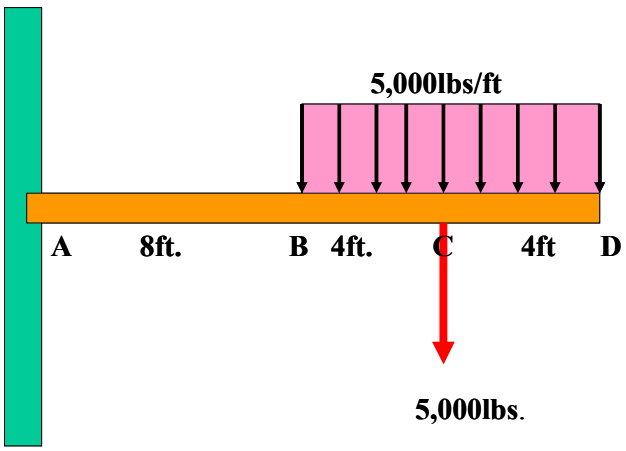


Problem #2 More difficult problem–just remember to break it up into smaller pieces and solve one section at a time. (3pts)

A loaded cantilever beam is shown below. For this beam:

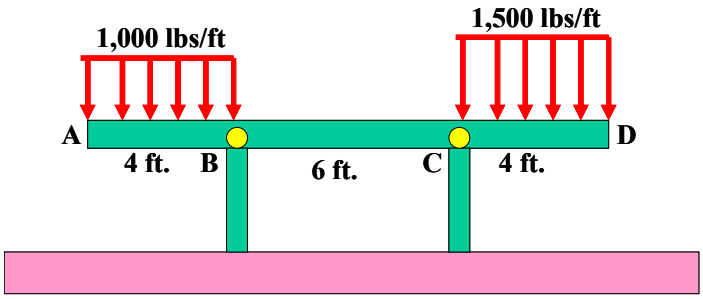
A. Draw a Free Body Diagram of the beam, showing all external loads and support forces (reactions).
B. Determine expressions for the internal shear forces (V) and bending moments (BM) in each sections of the beam.
C. Make shear force and bending moment diagrams for the beam.

Unless otherwise indicated, all joints and support points are assumed to be pinned or hinged joints.



Problem #3 (3pts)

A loaded, simply supported beam is shown below. For this beam: Perform **A. – C.** as done in Problem #1 (Note: joints B & C will act as pins)



Problem #4 (3pts)

A beam is loaded & supported as shown in the Figure below. For this beam, draw the complete shear force and bending moment diagrams.