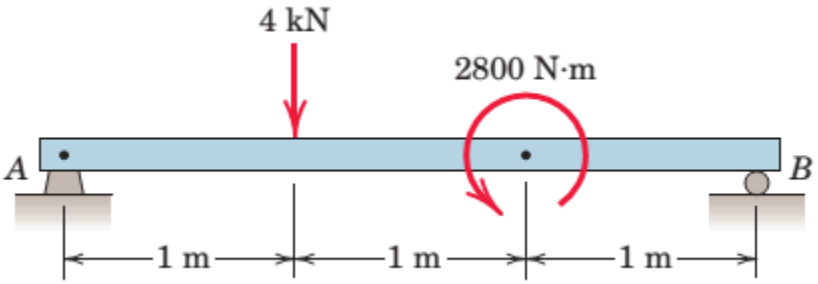
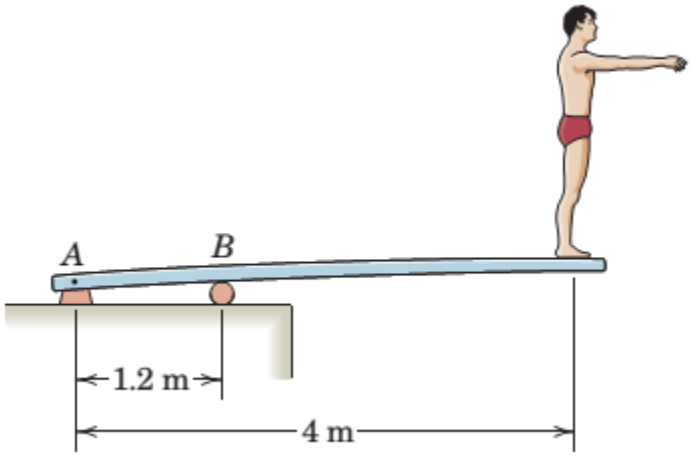
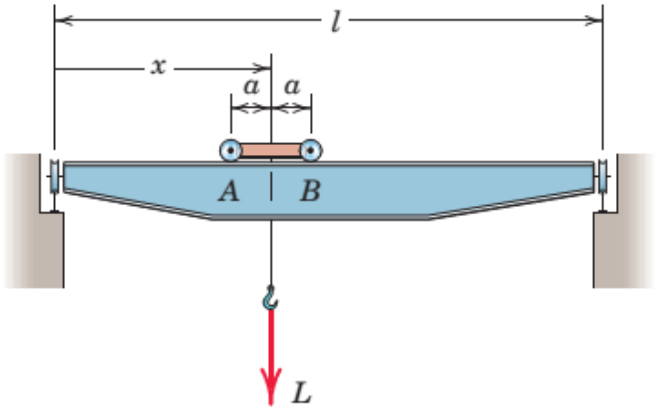
Problem 1. Draw the shear and moment diagrams for the loaded beam. What are the values of the shear and moment at the middle of the beam?



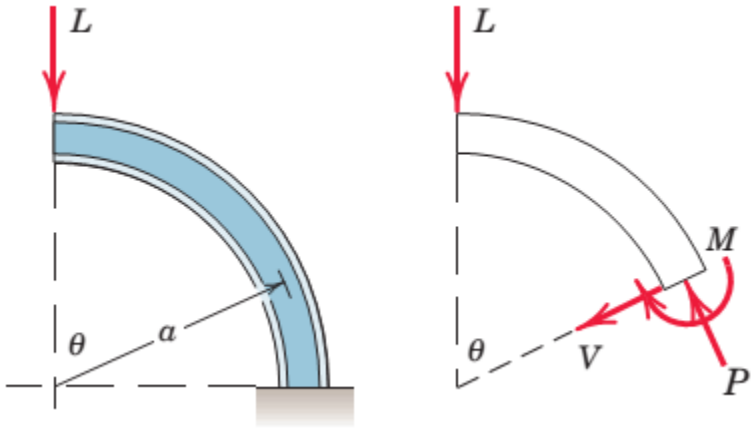
Problem 2. Draw the shear and moment diagrams for the diving board, which supports the 80-kg man poised to dive. Specify the bending moment with the maximum magnitude.



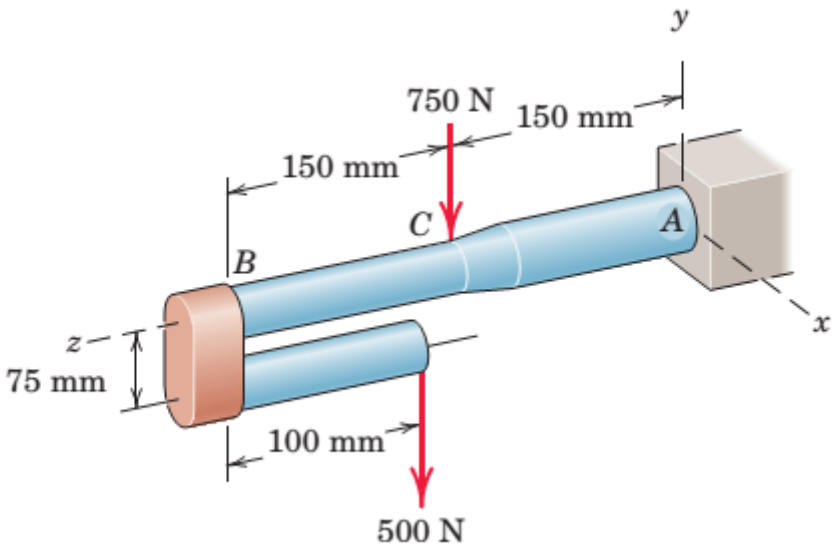
Problem 3. Determine the maximum bending moment M and the corresponding value of x in the crane beam and indicate the section where this moment acts.



Problem 4. A curved cantilever beam has the form of a quarter circular arc. Determine the expressions for the shear V and the bending moment Mas functions of θ.



Problem 5. Construct the bending-moment diagram for the cantilevered shaft AB of the rigid unit shown.



Problem 6. The resistance of a beam of uniform width to bending is found to be proportional to the square of the beam depth y. For the cantilever beam shown the depth is h at the support. Find the required depth y as a function of the length x in order for all sections to be equally effective in their resistance to bending.