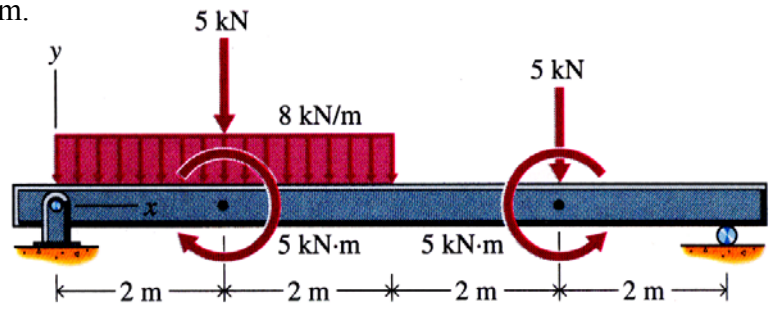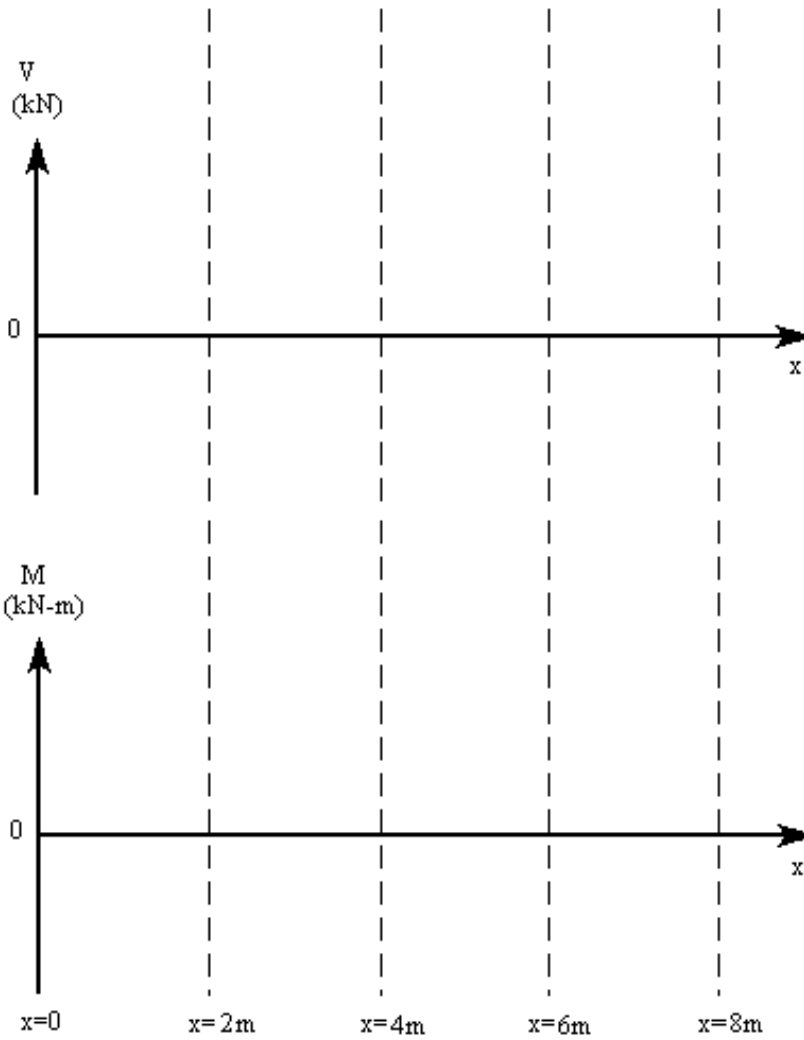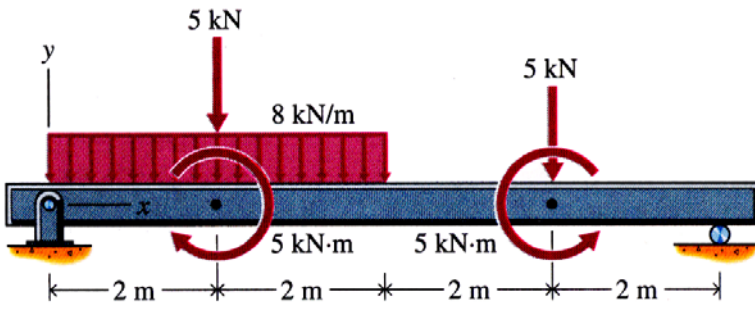1. Using the coordinate axes shown, write **equations** for the shear force V(x) and bending moment M(x) for the portion of the beam in the interval 2 < x < 4 m.
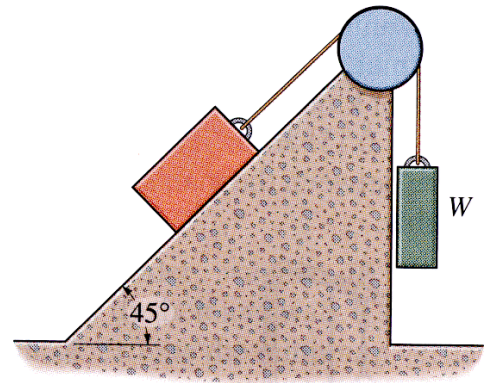
    (Look at Problem 2 before proceeding.)

2. Draw **complete** shear and moment diagrams for the beam in Problem 1.

3. Determine the maximum and minimum values of weight W which may be applied without causing the 50-lb block to slip. The coefficient of static friction between the block and the inclined plane is : $_{s1} = 0.2$ and between the rope and the fixed drum is : $_{s2} = 0.3$.

4. Locate the x-centroid of the cross-sectional area.

$y = 0.357 + 0.386 x + 0.018 x^2$

40 mm

50 mm

60 mm

100 mm