

School of Engineering

Department of Civil & Environmental Engineering

CEE 3222- Theory of Structures

Tutorial No. 2 – Internal loading developed in structural members.

Chapter 4 in Textbook “Structural Analysis” 10th Edition by Russell Hibbeler

Question 1.1

Determine the axial forces, shears, and bending moments at points A and B of the structure shown.

Fig1.1a

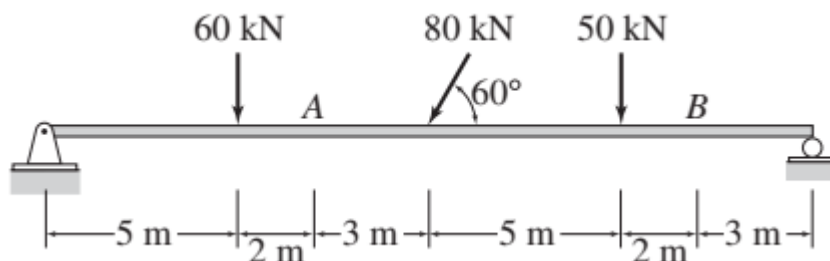


Fig1.1b

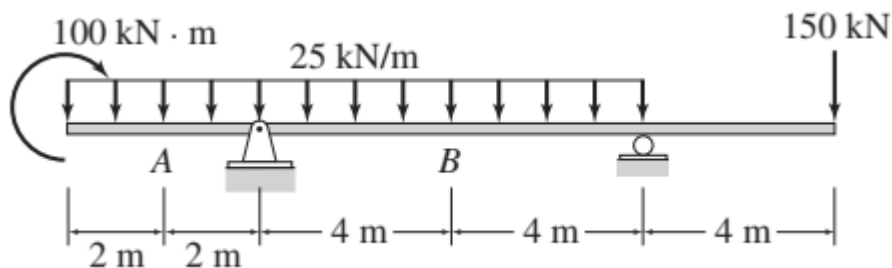
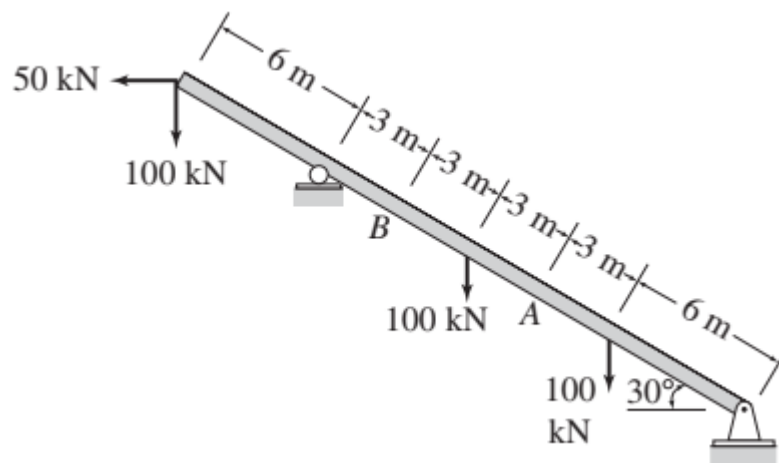
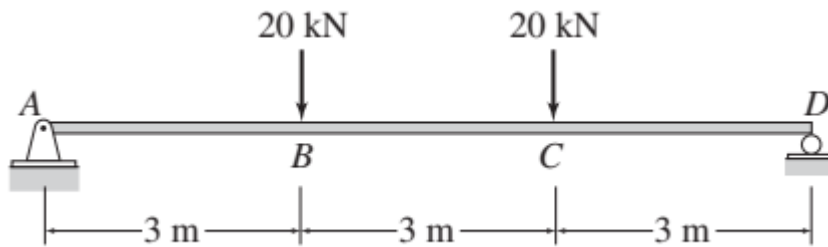
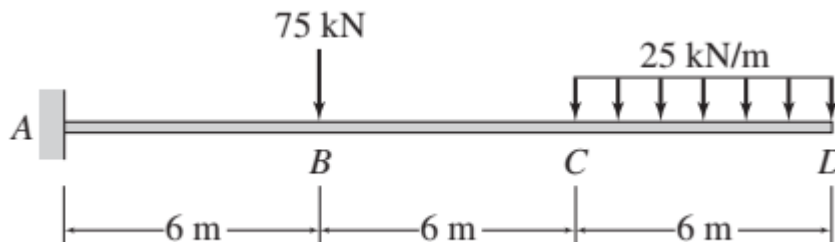
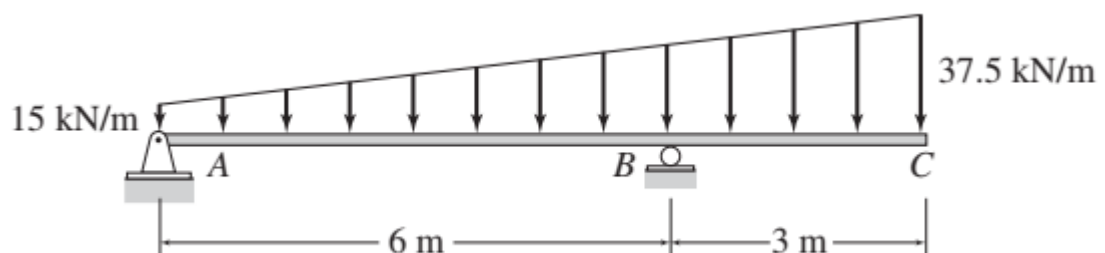


Fig1.1c



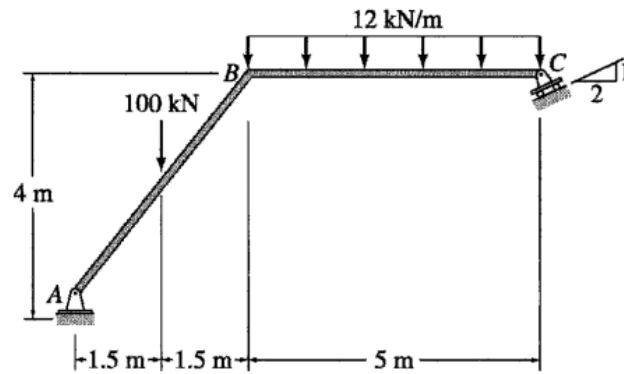
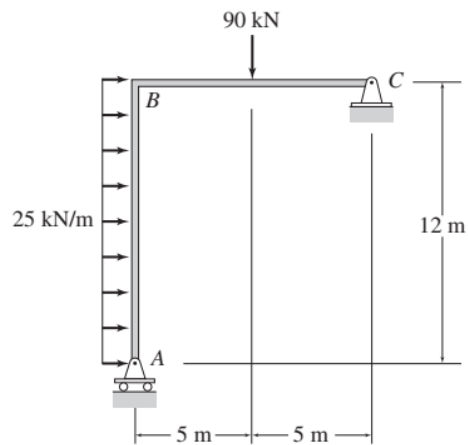
Question 1.2

- (I) Determine the equations for shear and bending moment for each beam shown using:
 - (a) Equilibrium (first principles)
 - (b) The method of integration
- (II) Use the resulting equations from part (I) to draw the shear and bending moment diagrams.
- (III) Use the slope-area method, draw the shear and bending moment diagrams for each of the beam shown below.

Fig1.2a**Fig1.2b****Fig1.2c**

Question 1.3

Draw the shear and bending moment diagrams for each of the frames shown below.

Fig1.3a**Fig1.3b****Fig1.3c**