1. Calculate the magnitude of shear force for the cantilever beam at the fixed end which carries a concentrated force P and a distributed load of intensity w_o force per unit length as shown in figure 1.

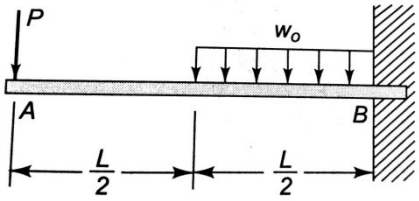


Figure 1

2. Calculate the magnitude of bending moment for the cantilever beam at the fixed end which carries a concentrated force P and a distributed load of intensity w_o force per unit length as shown in figure 1.
3. Calculate the internal forces and moments acting at section 1 in the pinned framework shown in figure 2.

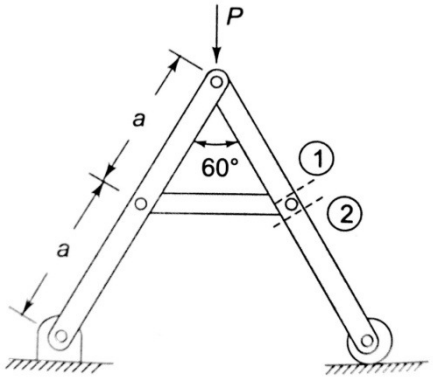
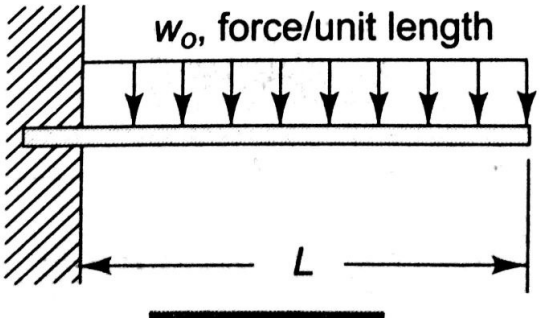


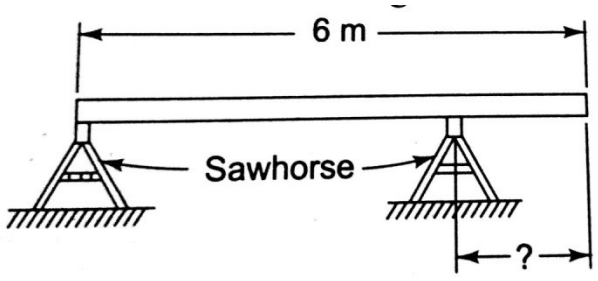
Figure 2

4. Calculate the internal forces and moments acting at section 2 in the pinned framework shown in figure 2.

5. Calculate the maximum shear force and bending moment at distance L/2 from the fixed end for the beam given below



6. A carpenter with a power saw has a 6-m plank of uniform weight per unit length wo and two sawhorses. He wishes to cut a 1.8 m length from the plank, but in order to minimize splitting of the ends he wants to cut it at a point where the bending moment in the plank is zero. If he places one sawhorse at the end of the plank, where should he put the other so that the bending moment will be zero 1.8 m from the other end of the plank.



Ans 1.385 m

7. For the figure shown below,the internal forces are represented are as horizontal force (F_H), vertical force (F_V) and Moment (M).

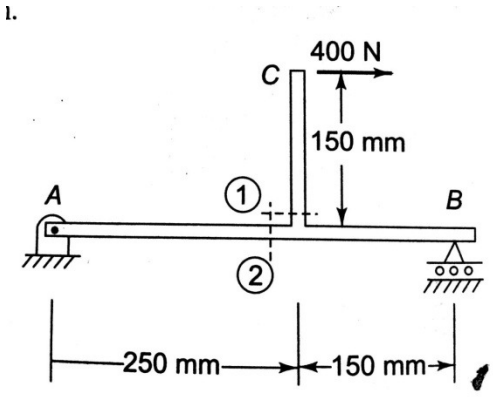


Figure 3

Calculate the reactions at A

- R_{AX} = 400 N (Left) , R_{AY} = 150 N (Upward)
- **R_{AX} = 400 N (Left) , R_{AY} = 150 N (Downward)**
- R_{AX} = 500 N (Left) , R_{AY} = 150 N (Upward)
- R_{AX} = 500 N (Left) , R_{AY} = 150 N (Downward)

8. Estimate the reaction at B

- **R_{BY} = 150 N (Upward)**
- R_{BY} = 150 N (Downward)
- R_{BY} = 250 N (Upward)
- R_{BY} = 250 N (Downward)

9. Calculate the magnitude of internal forces and moments acting at section 1

- **F_H = 400 N (Left) , F_V = 0 , M = 60 Nm (Counterclockwise)**
- F_H = 500 N (Left) , F_V = 0 , M = 60 Nm (Counterclockwise)
- F_H = 400 N (Left) , F_V = 0 , M = 60 Nm (Clockwise)
- F_H = 500 N (Left) , F_V = 0 , M = 60 Nm (Clockwise)

10. Calculate the magnitude of internal forces and moments acting at section 2

- **F_H = 400 N (Right) , F_V = 150 N(Upwards), M = 37.5 Nm (Clockwise)**
- F_H = 400 N (Left) , F_V = 150 N (Downwards), M = 37.5 Nm (Clockwise)
- F_H = 500 N (Right) , F_V = 250 N (Upwards), M = 47.5 Nm (Clockwise)
- F_H = 500 N (Right) , F_V = 350 N (Upwards), M = 57.5 Nm (Clockwise)