

系別：土木工程學系三年級

科目：工程力學(含靜力學、材料力學)

可否使用計算機			
可	○	否	

本試題共 5 大題， 1 頁

1. Draw the shear-force and bending-moment diagrams for the beam shown in Fig. 1. 20%
2. Using the method of joints, determine the force in members BC and CG of the truss shown in Fig. 2. 20%
3. A beam of T-section is supported and loaded as shown in Fig. 3. Determine: 20%
 - (a) The maximum tensile stress in the beam
 - (b) The maximum compressive stress in the beam
 - (c) The maximum shear stress in the web
4. A stepped shaft ABCD consisting of solid circular segments is subjected to three torque as shown in Fig. 4. The material is steel with shear modulus of elasticity $G = 12 \times 10^3$ ksi. Calculate: 20%
 - (a) The maximum shear stress in the shaft
 - (b) The angle of twist ϕ_D (in degree) at end D.
5. Determine the equation of the deflection curve for a cantilever beam AB subjected to a uniform load of intensity q as shown in Fig. 5. (Note: Use the second-order differential equation of the deflection curve. The beam has constant flexural rigidity EI) 20%

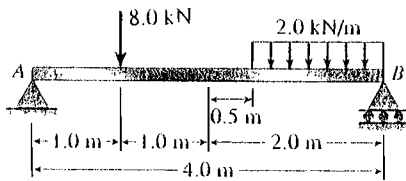


Fig. 1

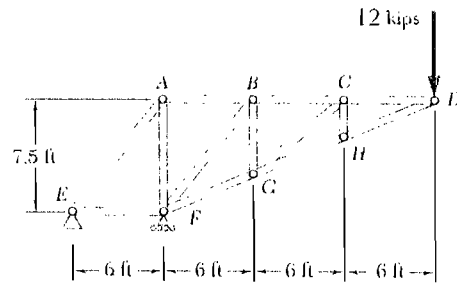


Fig. 2

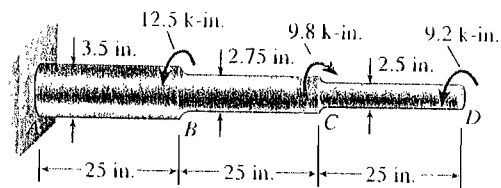
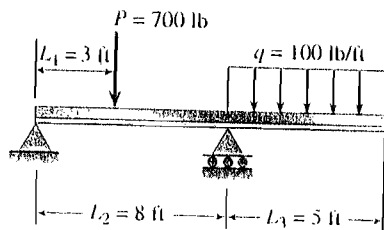


Fig. 4

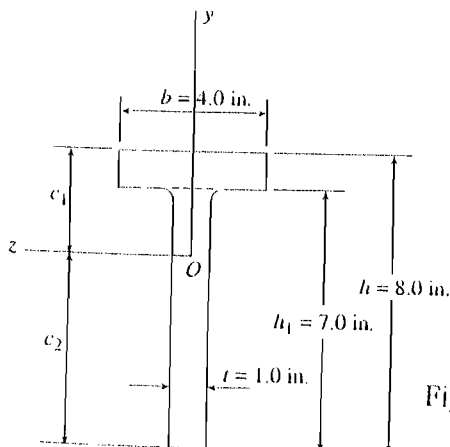


Fig. 3

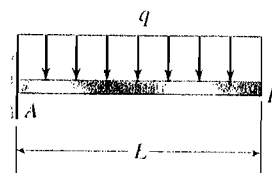


Fig. 5