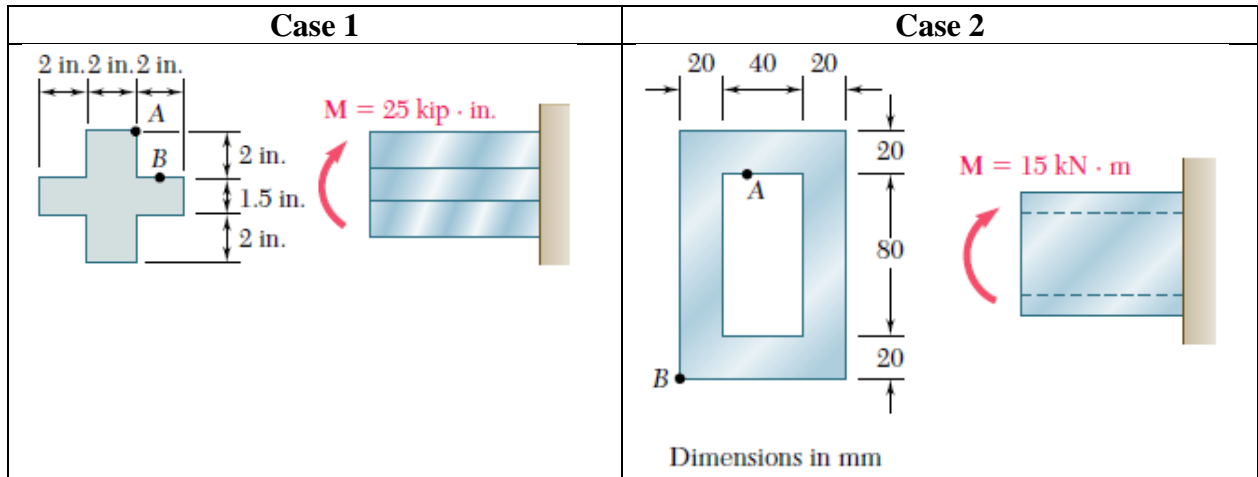# Home Work 04
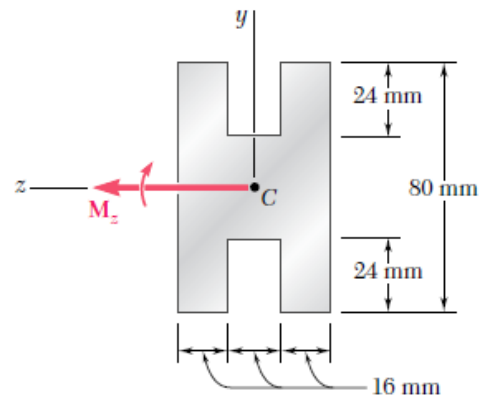
1. Knowing that the couple shown acts in a vertical plane, determine the stress at (*a*) point A, (*b*) point B.

| Case 1	Case 2
	Dimensions in mm

2. A beam of the cross section shown is extruded from an aluminum allow for which $\sigma_y = 250$ MPa and $\sigma_u = 450$ MPa. Using a factor of safety of 3.00, determine the largest couple that can be applied to the beam when it is bent about the z axis.


3. Two vertical forces are applied to a beam of the cross section shown. Determine the maximum tensile and compressive stresses in portion *BC* of the beam.

Case 1

Case 2
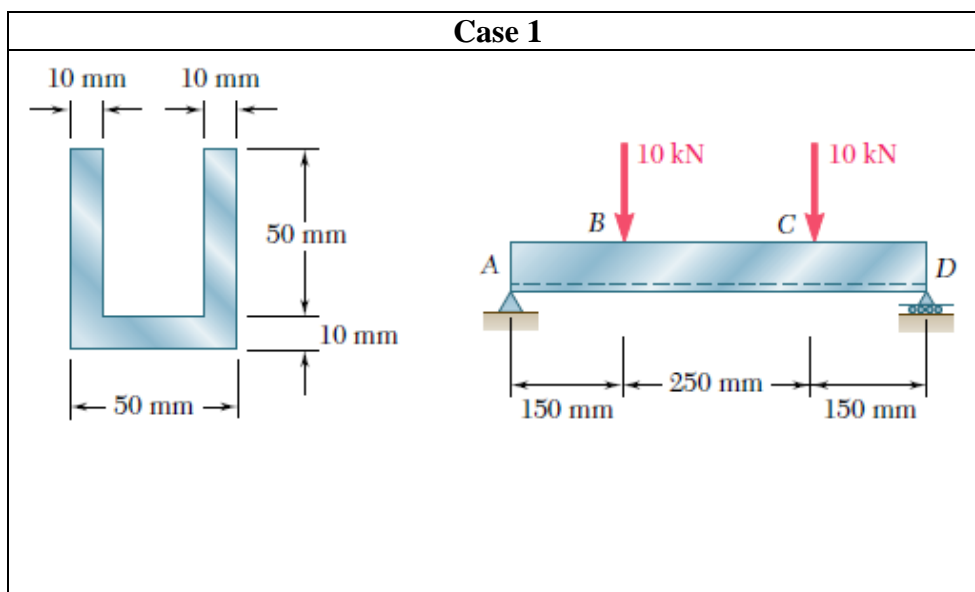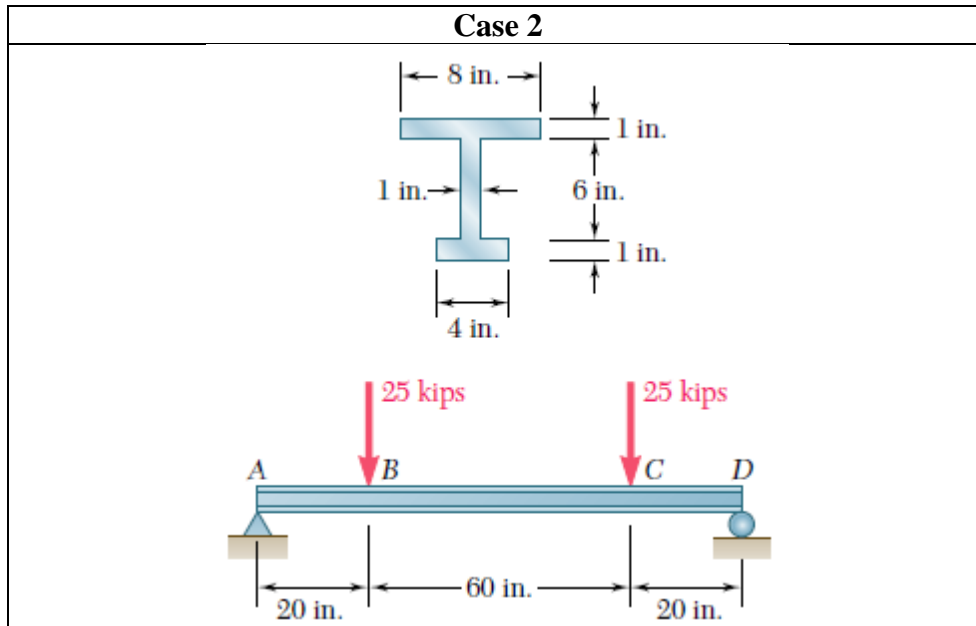
4. Knowing that a beam of the cross section shown is bent about a horizontal axis and that the bending moment is 6 kN-m, determine the total force acting on the top of flange and on the shaded portion of the web.
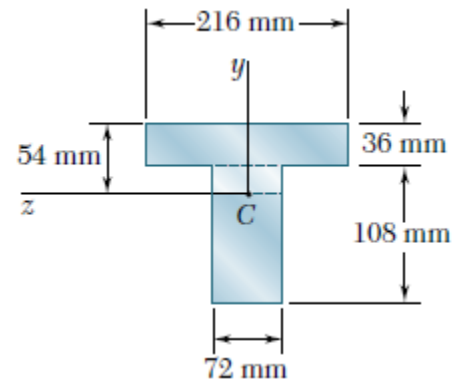
5. Knowing that a beam of the cross section shown is bent about a horizontal axis and that the bending moment is 50 kip-in, determine the total force acting (*a*) on the top flange, (*b*) on the shaded portion of the web.
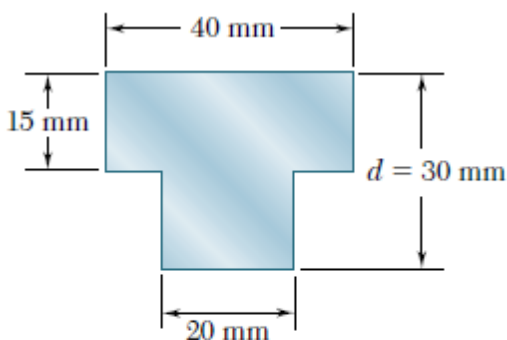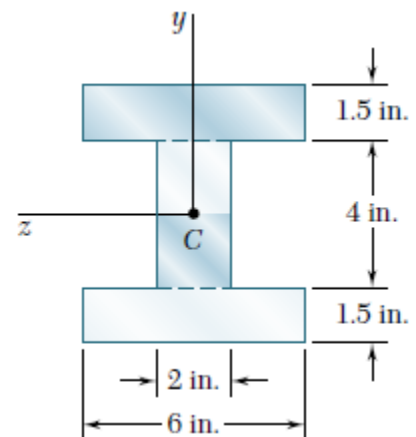
6. The beam shown is made of a nylon for which the allowable stress is 24 MPa in tension and 30 MPa in compression. Determine the largest couple M that can be applied to the beam.