**1)**   GIVEN: Two vertical forces are applied to a
         beam of the cross section shown. (B11.97)

10 mm     10 mm

50 mm

10 mm

|← 50 mm →|

10 kN        10 kN

B        C

A                                D
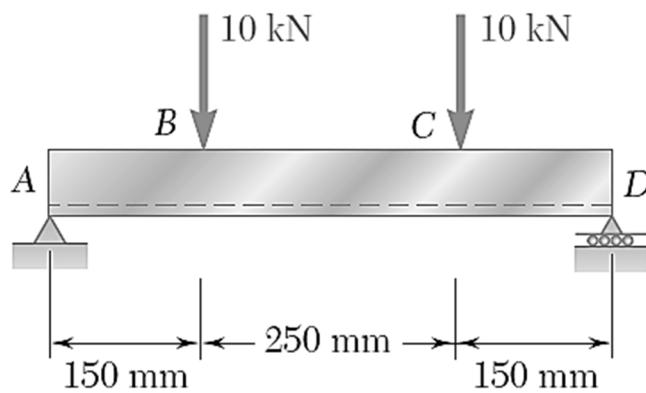
|← 250 mm →|

150 mm          150 mm

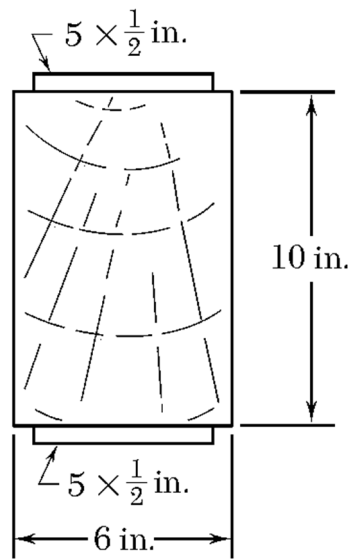REQ'D:   A) $V_{max}$ and $M_{max}$
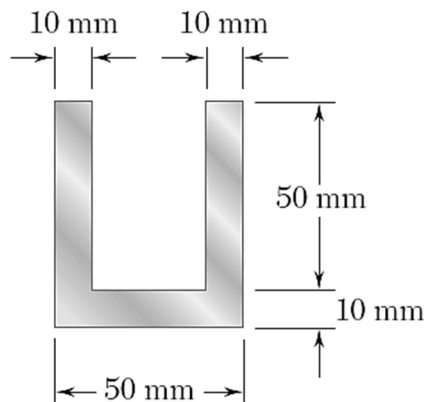
B) Centroid location, $\bar{y}$

C) Moment of inertia about neutral axis, $I_{NA}$

D) Maximum compressive and tensile bending stress

**2)** GIVEN: The composite beam shown.

|  | Wood | Steel |
|---|---|---|
| Modulus of elasticity | $2 \times 10^6$ psi | $30 \times 10^6$ psi |
| Allowable stress | 2000 psi | 22 ksi |

$5 \times \frac{1}{2}$ in.

10 in.

$5 \times \frac{1}{2}$ in.

6 in.

REQ'D: A) Transformation factor, n  (draw transformed section)

B) Locate $\bar{y}$ and calculate $I_t$ about the NA for the transformed section

C) Maximum allowable bending moment