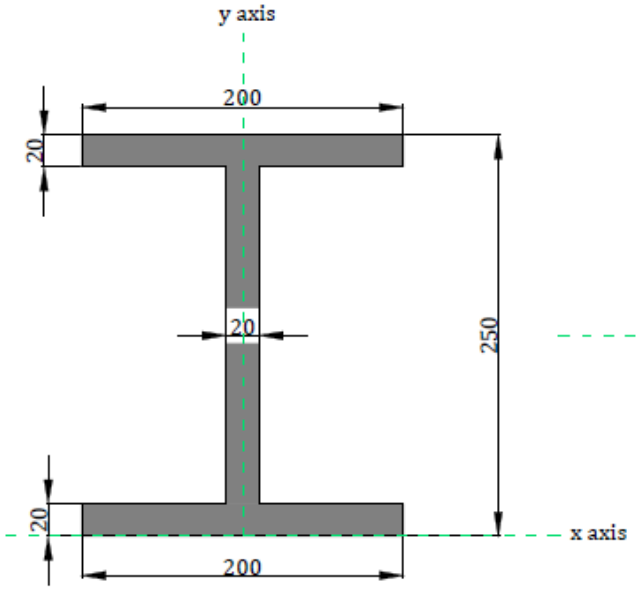
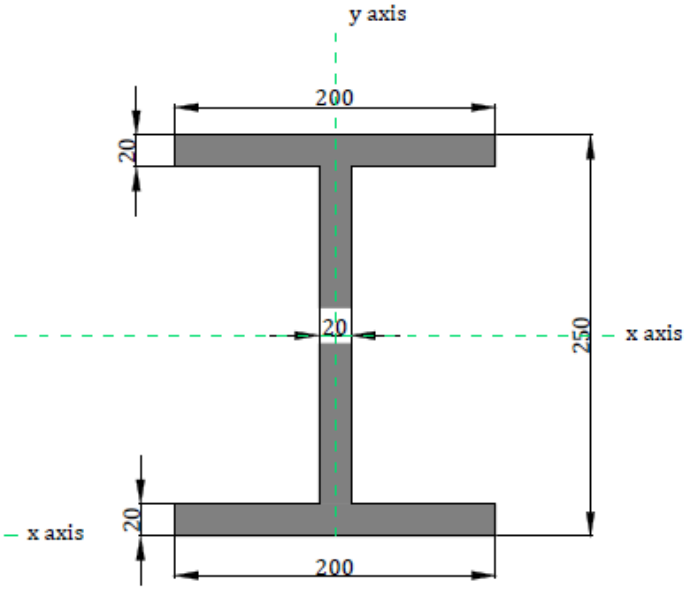
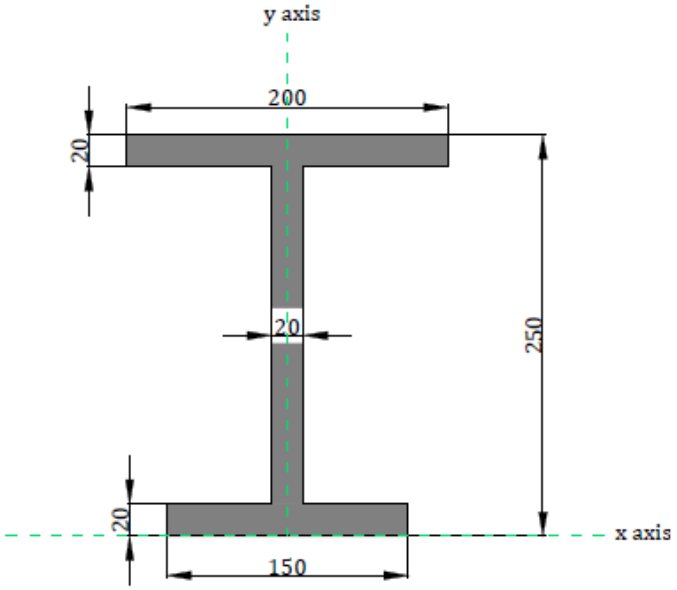




Soln. to Q5: The reference axes systems chosen are shown in green. The given I-section is symmetric about both vertical and horizontal axes. One of the choices of reference axes system is on the left side. In this case the centroid lies on the y-axis as it coincides with the axis of symmetry. Therefore, $(\bar{x}, \bar{y}) = (0, 125)$.

The second option of the reference axes system is the on the right where both, x- and y-axes coincide with the axes of symmetry and therefore, the centroid lies at the origin of the reference axes. $(\bar{x}, \bar{y}) = (0, 0)$



Soln. to Q6: In this case the I-section is symmetric only about the vertical axis. Therefore, the reference axes system is so chosen that the y-axis coincides with the vertical axis of symmetry. Hence, the centroid of the I-section lies on the y-axis and this makes $\bar{x} = 0$. Only the y-coordinate of the centroid must be determined, which works out to be 135.268mm. $(\bar{x}, \bar{y}) = (0, 135.268)$