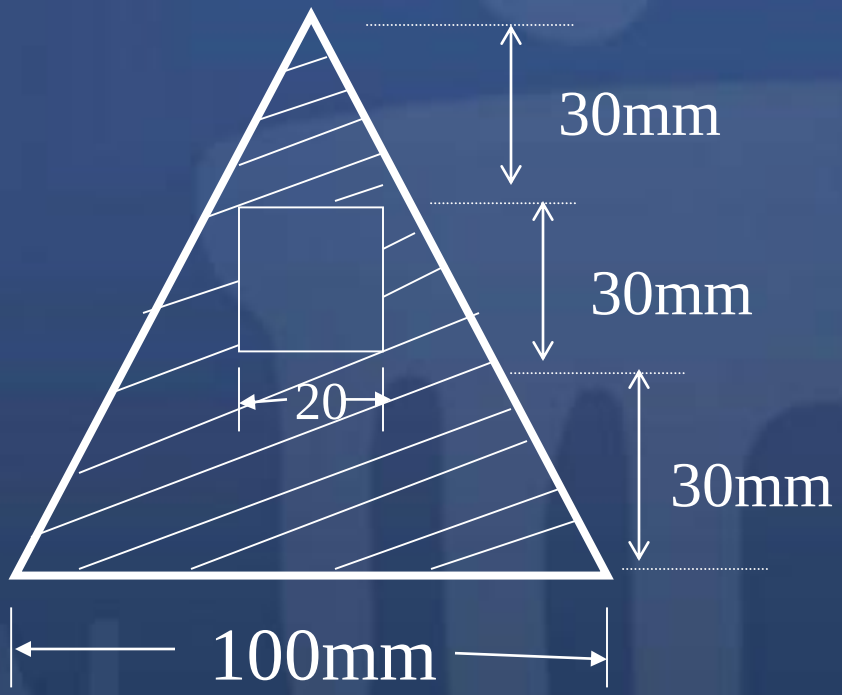
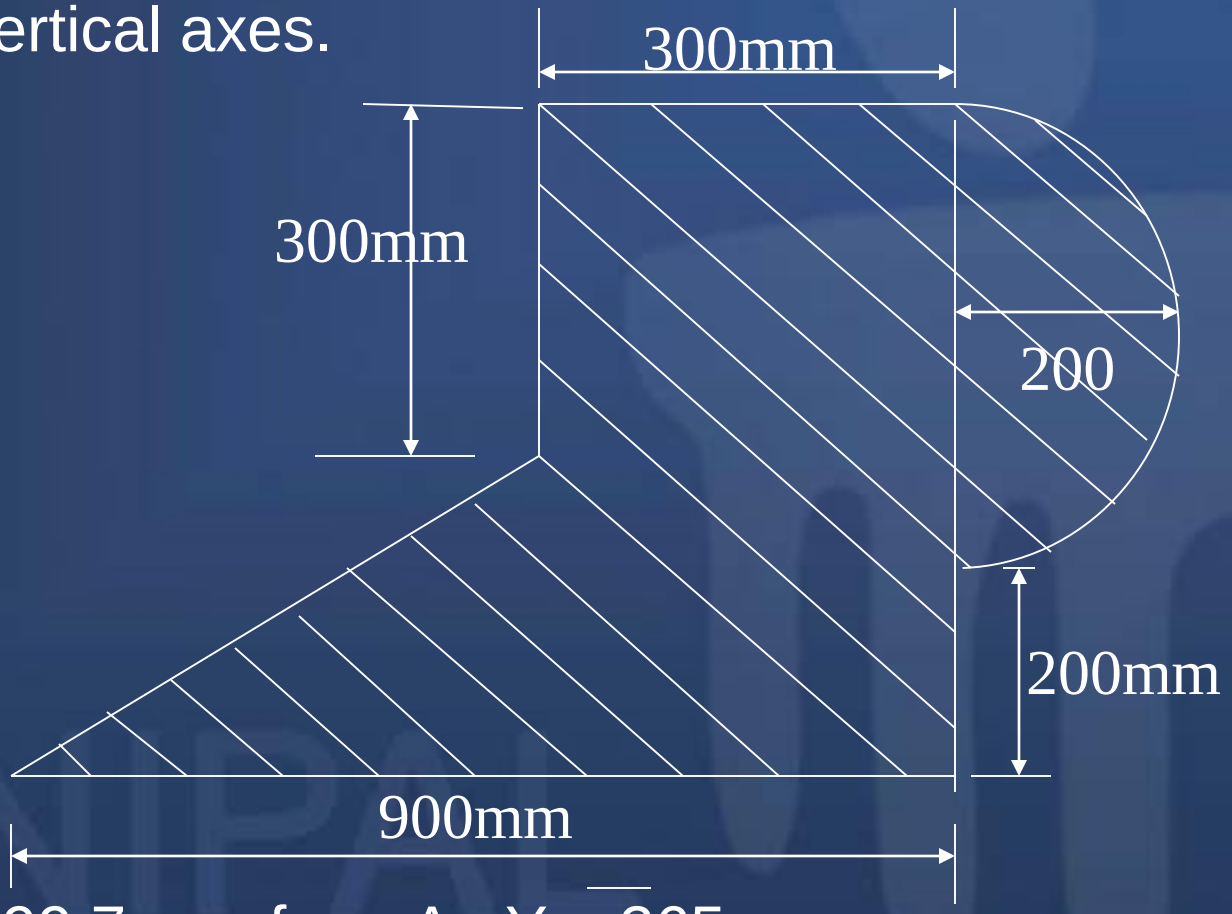
Q.1. Determine the moment of inertia about the centroidal axes.



[Ans: $\bar{Y}$ = 27.69mm $I_{xx} = 1.801 \times 10^6 mm^4$

$I_{yy} = 1.855 \times 10^6 mm^4$]

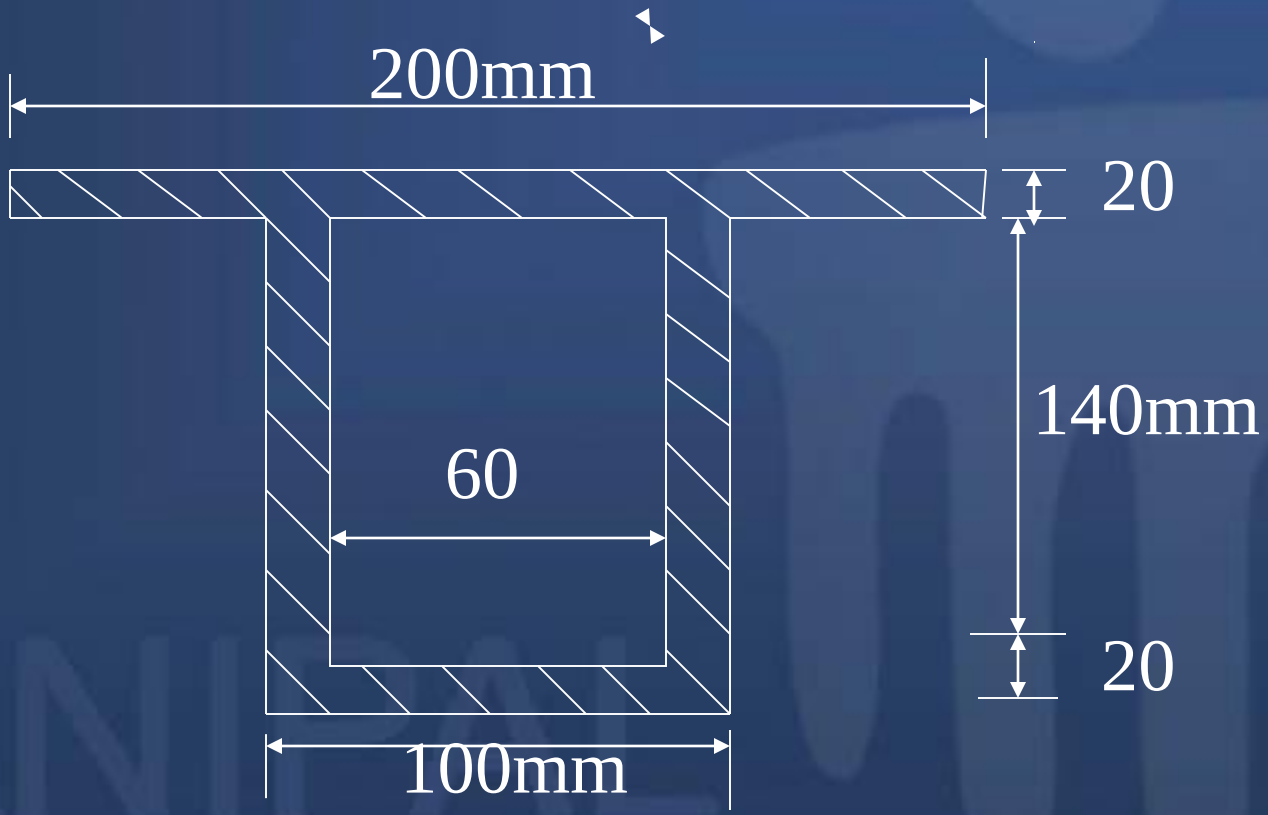
Q.2. Determine second moment of area about the centroidal horizontal and vertical axes.



[Ans: $\bar{X}$ = 99.7mm from A, $\bar{Y}$ = 265 mm

$I_{xx} = 10.29 \times 10^9 mm^4$, $I_{yy} = 16.97 \times 10^9 mm^4$]

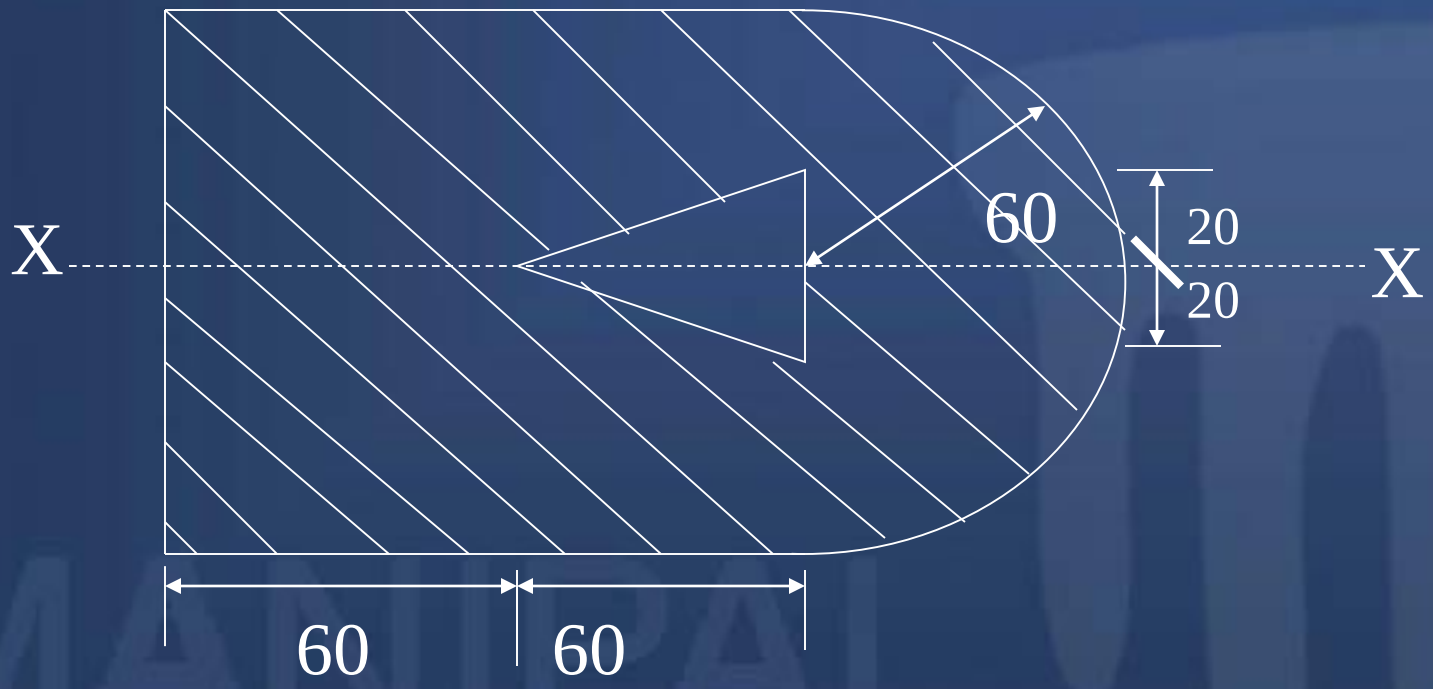
Q.3. Determine M.I. Of the built up section about the horizontal and vertical centroidal axes and the radii of gyration.



[Ans: $I_{xx} = 45.54 \times 10^6 mm^4$, $I_{yy} = 24.15 \times 10^6 mm^4$

$r_{xx} = 62.66mm$, $r_{yy} = 45.63mm$]

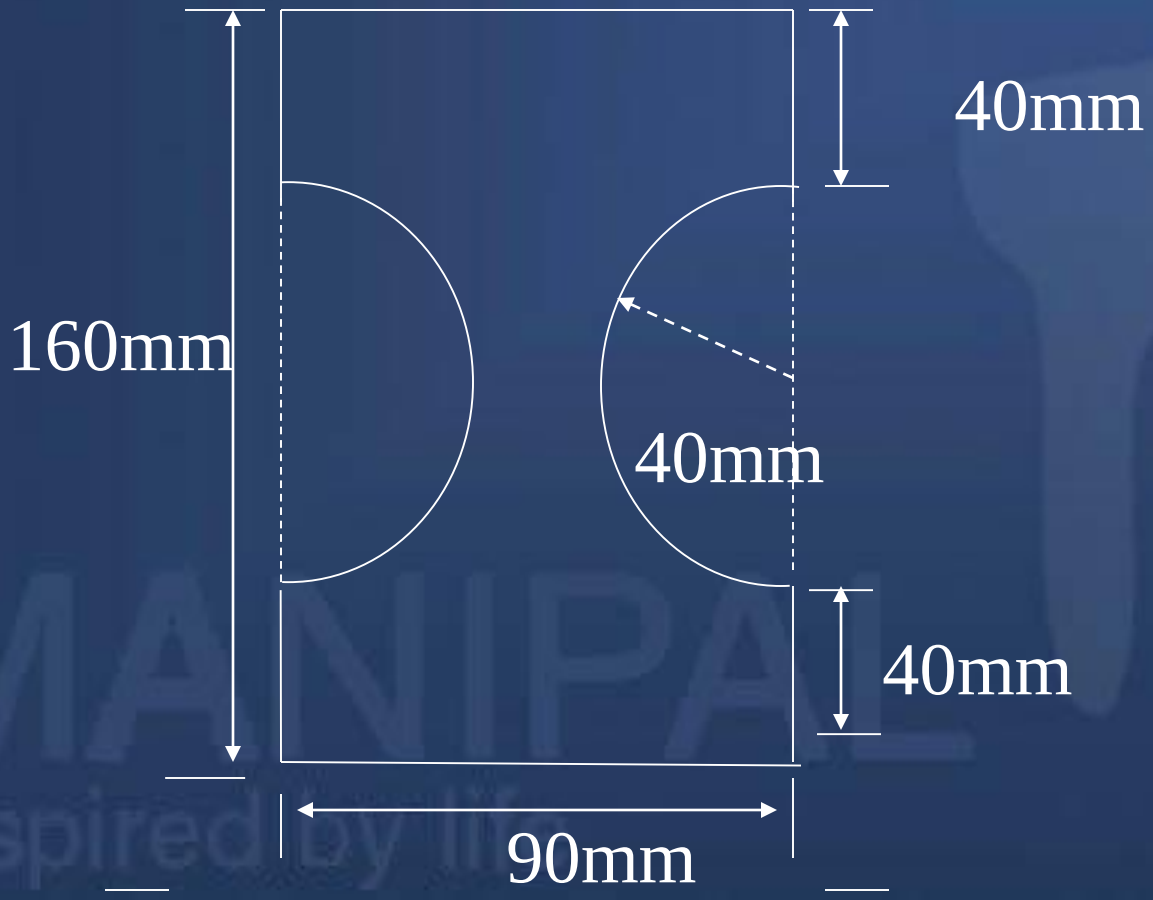
Q.4. Determine the horizontal and vertical centroidal M.I. of the shaded portion of the figure.



[Ans: $\overline{X}$ = 83.1mm

$I_{xx} = 2228.94 \times 10^4 mm^4$, $I_{yy} = 4789.61 \times 10^4 mm^4$]

Q5. Determine horizontal and vertical centroidal M.I. for the section shown in figure.



[Ans: I_{xx} = 2870.43 x $10^4 mm^4$, I_{yy} = 521.64 x $10^4 mm^4$]