

Centroids and Moments of Inertia

Q1. Calculate the position of the centroid of the shape shown in Figure 1.

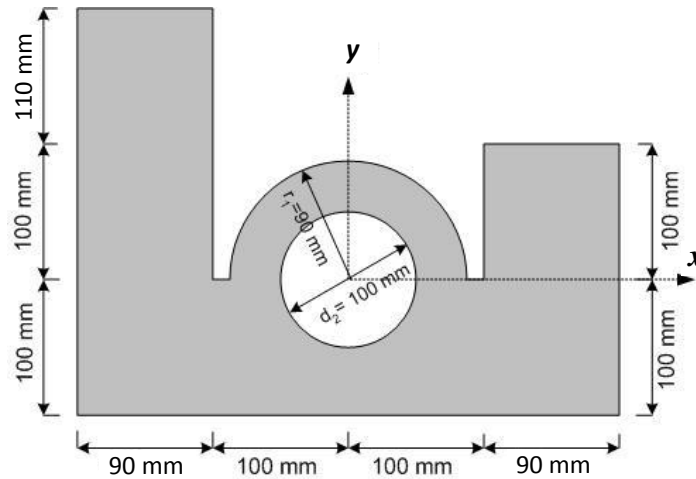


Figure 1

Q2. Calculate the moments of inertia I_x , I_y , J_o , I_{xy} of the section shown in Figure 2 with respect to a coordinate system located at the centroid.

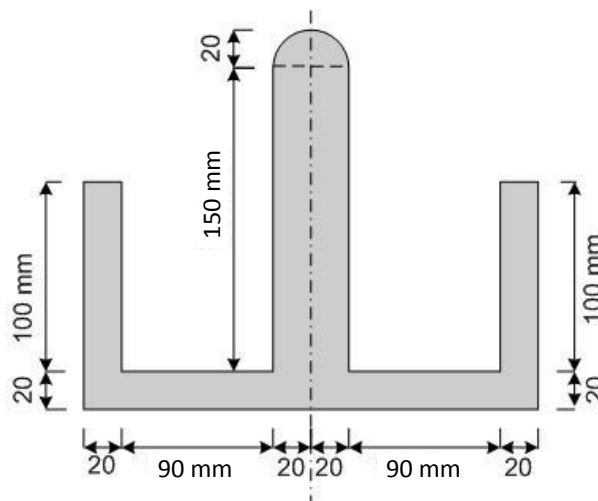


Figure 2



Q3. For a coordinate system located at the centroid, calculate the maximum and minimum values of the moments of inertia I_{\max} and I_{\min} (obtained by rotating the axes) and the corresponding angles of the section shown in Figure 3.

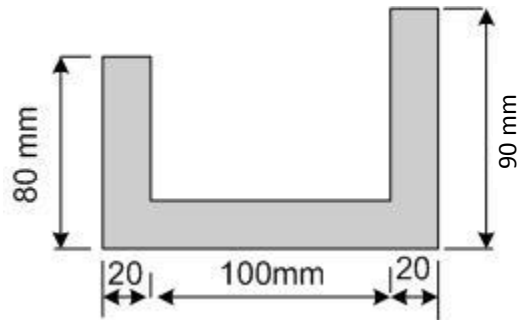


Figure 3