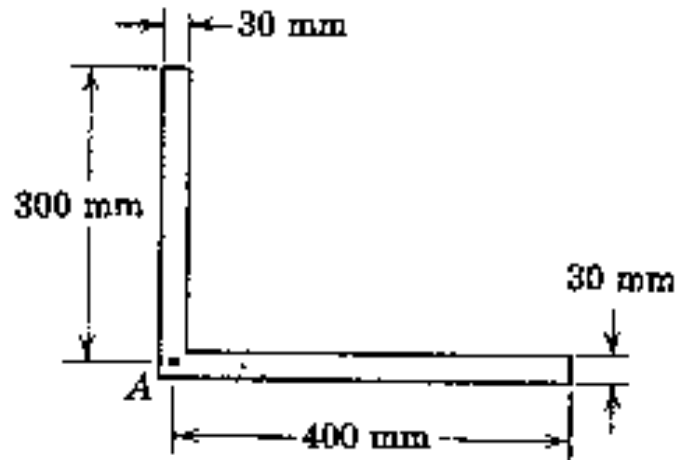


**New Problem Sheet No. 6.2**  
**(Area Moment of Inertia of Composite Figures)**

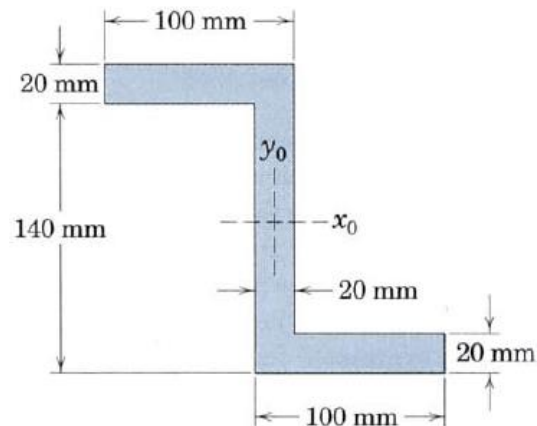
1. Calculate the polar radius of gyration of the area of the angle section about point A. Note that the width of the legs is small compared to the length of each leg.

Ans.  $k_A = 208 \text{ mm}$



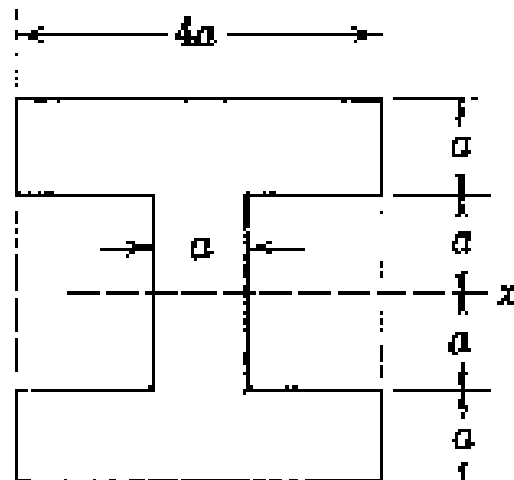
2. Determine the moments of inertia of the Z-section about its centroidal  $x_0$ - and  $y_0$ - axes.

Ans.  $I_x = 22.6(10^6) \text{ mm}^4$ ,  
 $I_y = 9.81(10^6) \text{ mm}^4$



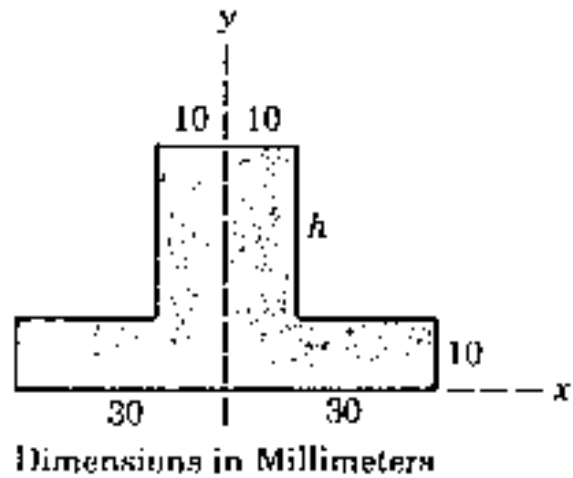
3. Determine the moment of inertia of the shaded area about the x-axis.

Ans.  $I = \frac{58}{3} a^4$



4. Calculate the value of  $h$  for which  $I_x = I_y$  for the shaded area shown.

Ans.  $h = 20.0 \text{ mm}$



5. For the H-beam section determine the flange width  $b$  that will make the moments of inertia about the central  $x$ - and  $y$ - axes equal.

Ans.  $b = 161 \text{ mm}$

