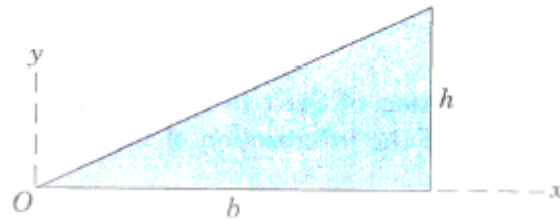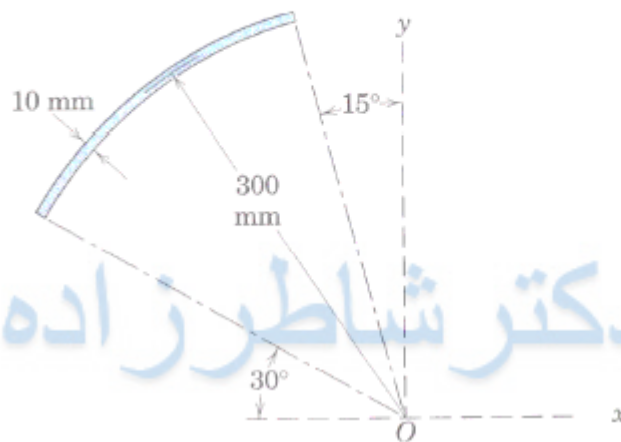**1**

Determine by direct integration the moment of inertia of the triangular area about the *y*-axis.
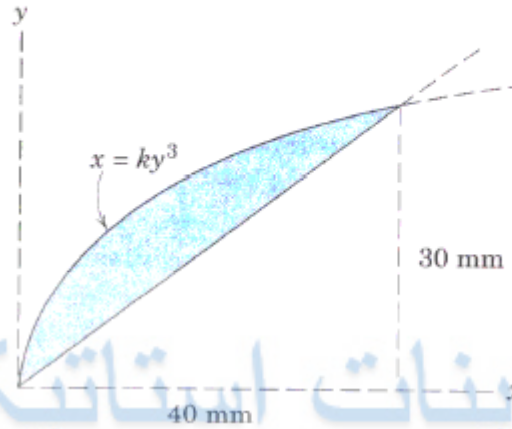

2

Determine a close approximation of the polar moment of inertia I_O of the thin circular strip of area about point O.
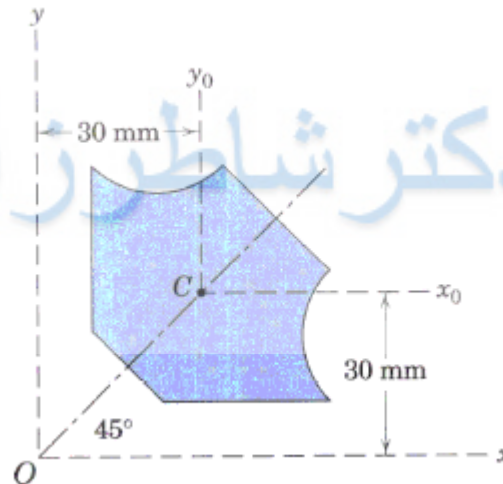
3

Calculate the moment of inertia of the shaded area about the x-axis.
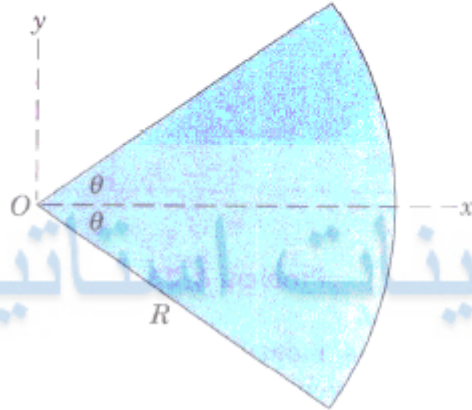
$x = ky^3$

30 mm

40 mm

4

The plane figure is symmetrical with respect to the 45° line and has an area of 1600 mm². Its polar moment of inertia about its centroid C is $40(10^4)$ mm⁴. Compute (a) the polar radius of gyration about O and (b) the radius of gyration about the x_0-axis.
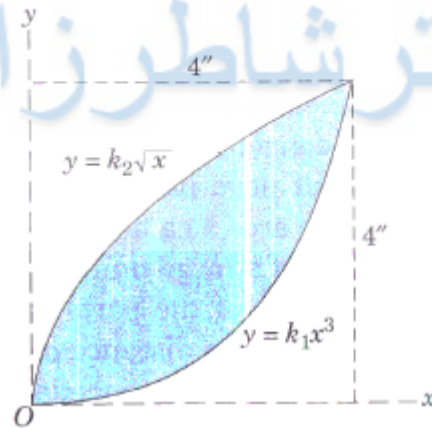
30 mm

45°

30 mm

5

Determine the moments of inertia of the circular sector about the x- and y-axes.
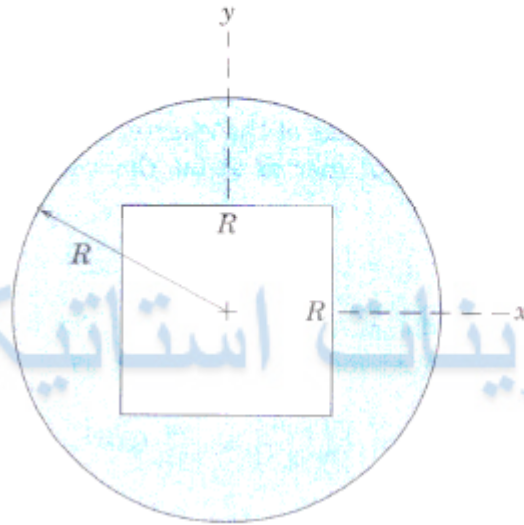

6

Calculate the moments of inertia of the shaded area about the x- and y-axes, and find the polar moment of inertia about point O.
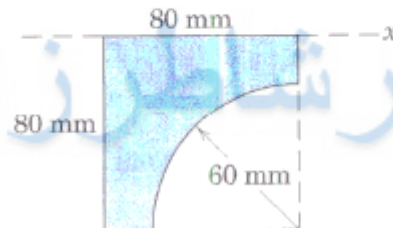
7

Determine the polar moment of inertia of the circular area without and with the central square hole.
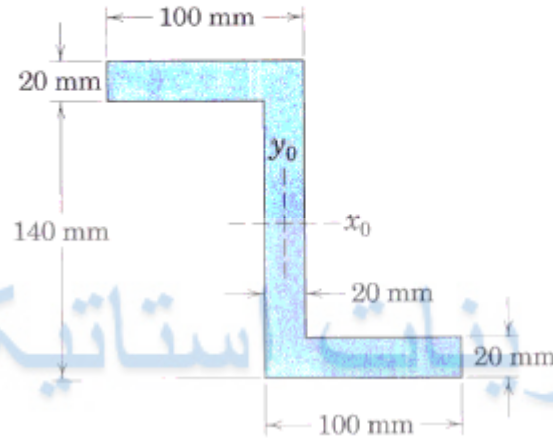

8

Calculate the moment of inertia of the shaded area about the x-axis.

9

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

10
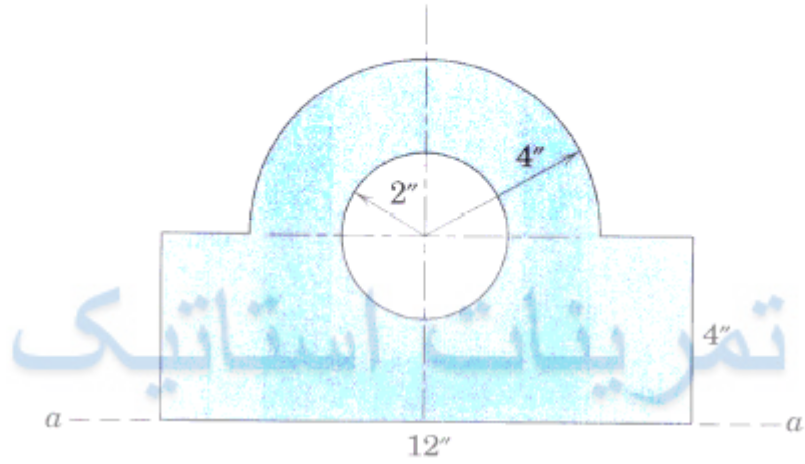
Calculate the polar radius of gyration of the shaded area about its centroid C.

Dimensions in millimeters

The cross section of a bearing block is shown in the figure by the shaded area. Calculate the moment of inertia of the section about its base a-a.