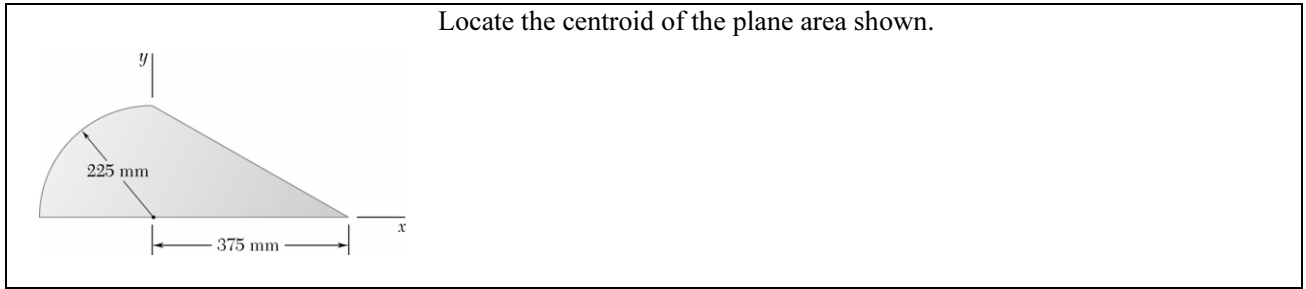
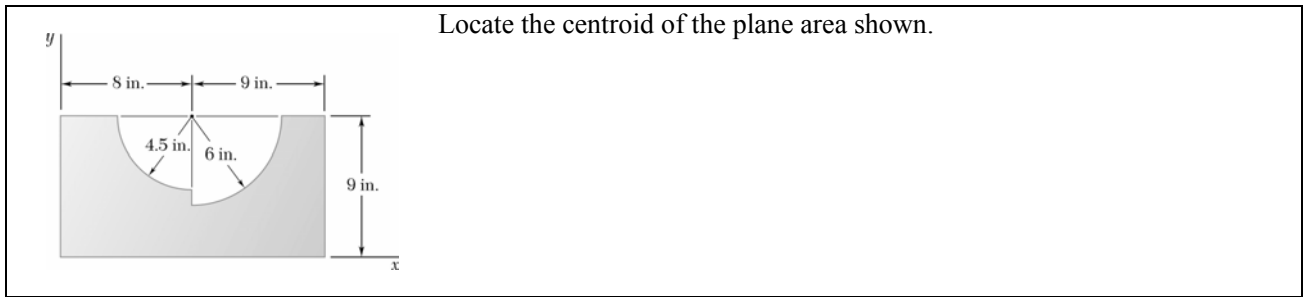
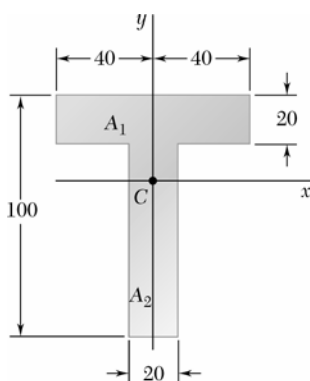


Chapter 5, Problem 5.



Chapter 5, Problem 6.



Chapter 5, Problem 18.

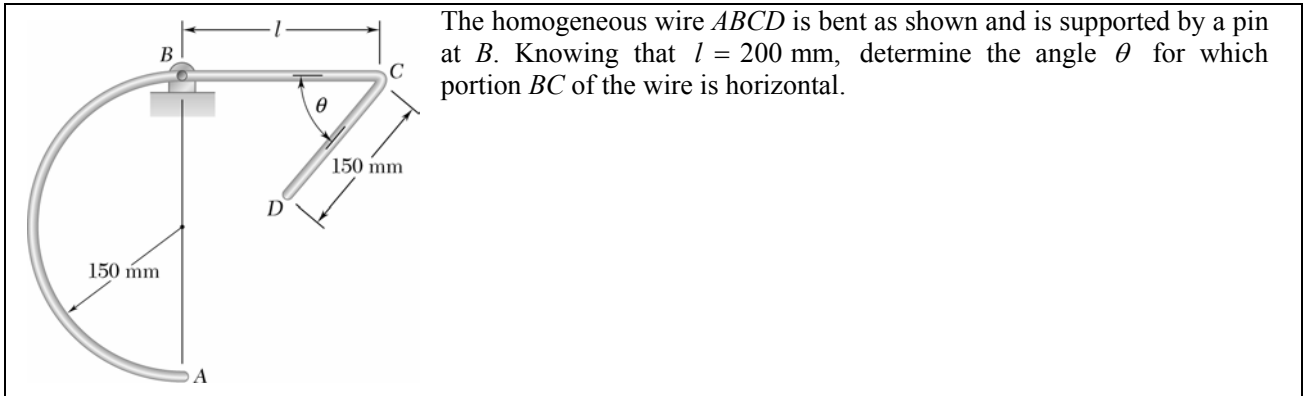
The diagram shows a T-shaped area divided into two components, A_1 and A_2 . The horizontal x axis is drawn through the centroid C of the area. The dimensions are as follows:

- The top flange (A_1) has a total width of 80 mm, divided into two 40 mm segments by the y axis. Its thickness is 20 mm.
- The vertical stem (A_2) has a width of 20 mm.
- The total height of the stem is 100 mm.
- The centroid C is located at the center of the stem, which is 50 mm from the bottom edge.

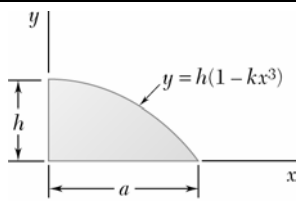
Dimensions in mm

The horizontal x axis is drawn through the centroid C of the area shown and divides the area into two component areas A_1 and A_2 . Determine the first moment of each component area with respect to the x axis, and explain the results obtained.

Chapter 5, Problem 26.

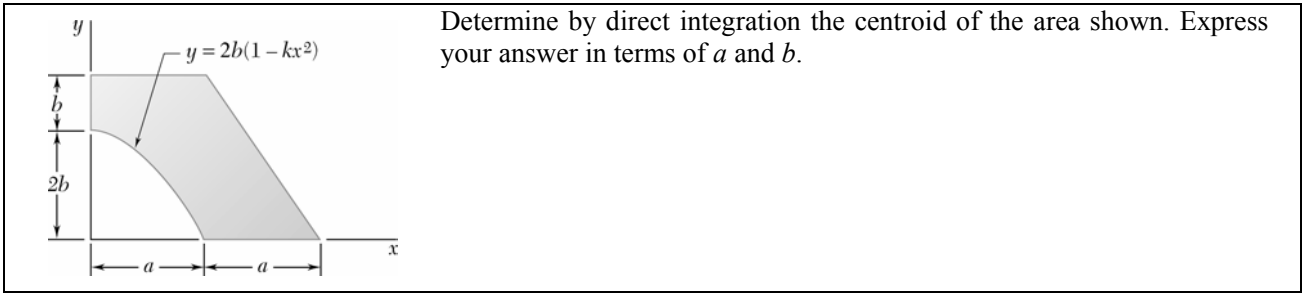


The homogeneous wire $ABCD$ is bent as shown and is supported by a pin at B . Knowing that $l = 200$ mm, determine the angle θ for which portion BC of the wire is horizontal.

Chapter 5, Problem 32.

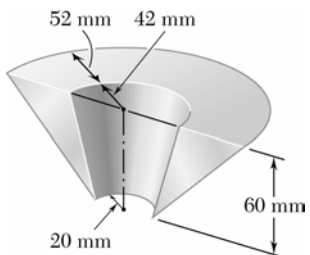
Determine by direct integration the centroid of the area shown. Express your answer in terms of a and h .

Chapter 5, Problem 40.



Chapter 5, Problem 55.

Determine the volume and total surface area of the body shown.



The diagram shows a frustum of a cone. The top circular face has a diameter of 42 mm, and the bottom circular face has a diameter of 52 mm. The height of the frustum is 60 mm. A vertical dashed line indicates the central axis, and a horizontal line at the bottom indicates a radius of 20 mm.

continued