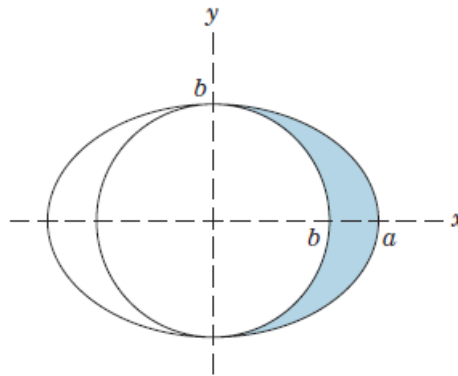
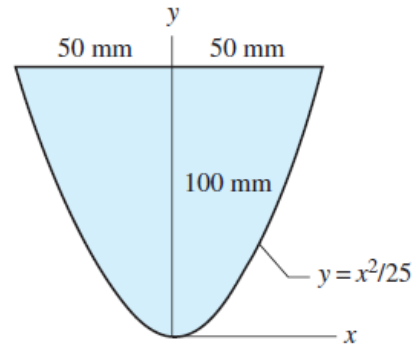
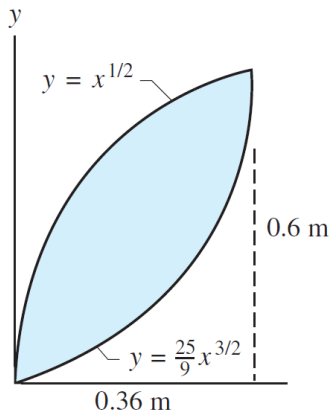
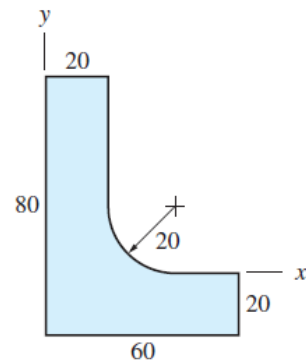
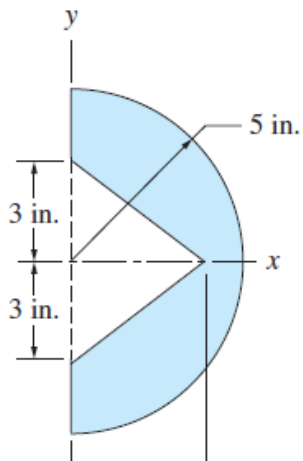


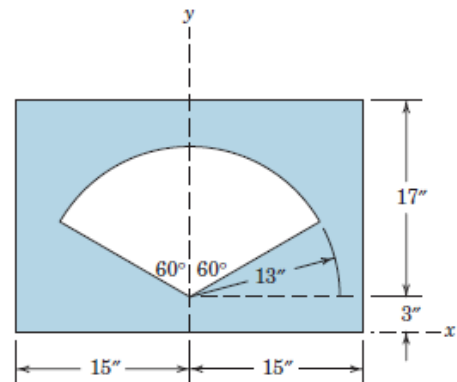
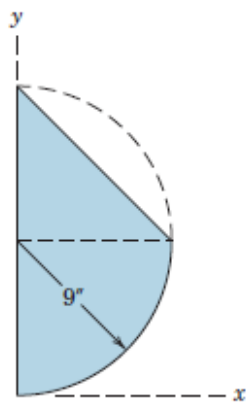
1. Use integration to determine the coordinates of the centroid of the plane region shown.



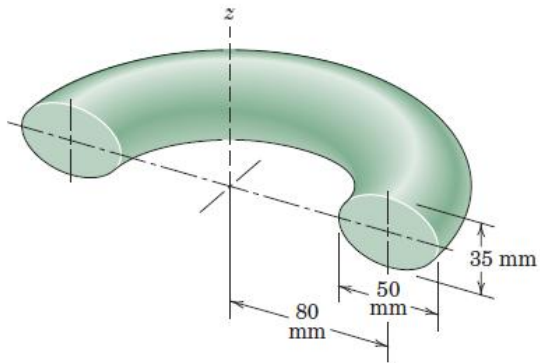
2. Use the method of composite areas to calculate the centroidal coordinates of the plane regions shown.



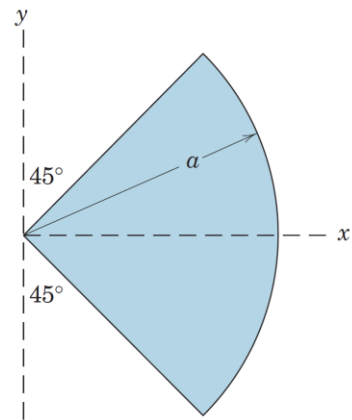
Dimensions in mm



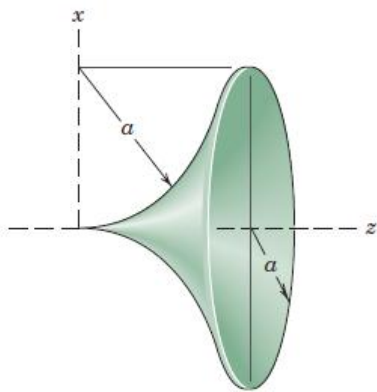
3. Determine the volume V generated by revolving the elliptical area through 180° about the z -axis.



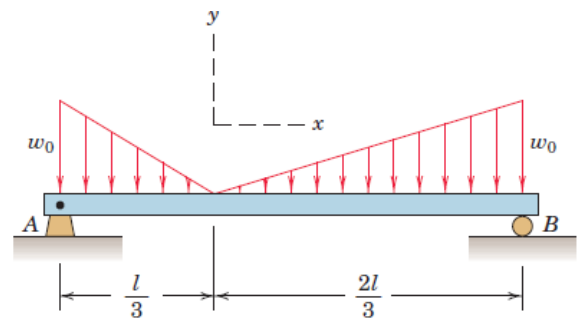
4. The quarter-circular area is rotated through about the y -axis. Determine the volume of the resulting body, which is a portion of a sphere.



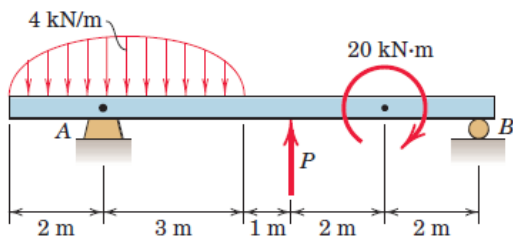
5. Determine the surface area of one side of the bell shaped shell of uniform but negligible thickness.



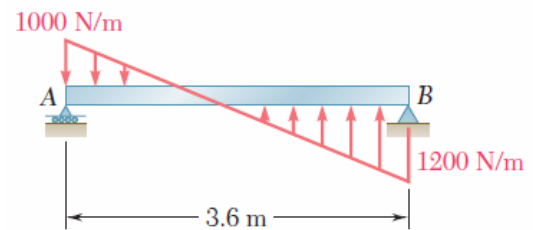
6. Calculate the support reactions at A and B for the loaded beam.



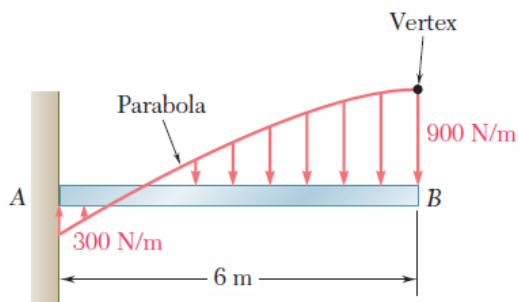
7. The beam is subjected to an elliptical load distribution and the point loads shown. For what value of the force P will the reaction at B go to zero?



8. Determine the reactions at the beam supports for the given loading.



9. Determine the reactions at the beam supports for the given loading.



10. Determine the force and moment reactions at A for the beam which is subjected to the load combination shown.

