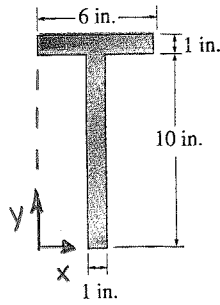


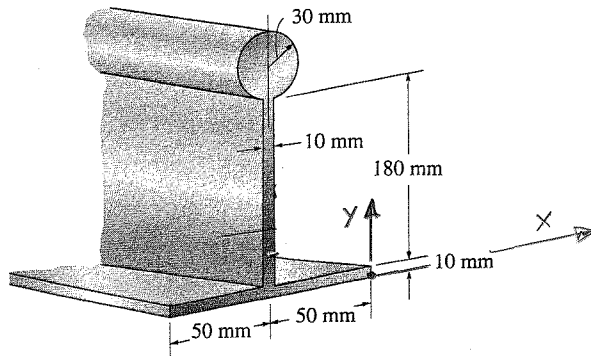
13A

For the area shown below, find the location (\bar{x}, \bar{y}) of the centroid using the given coordinate system.



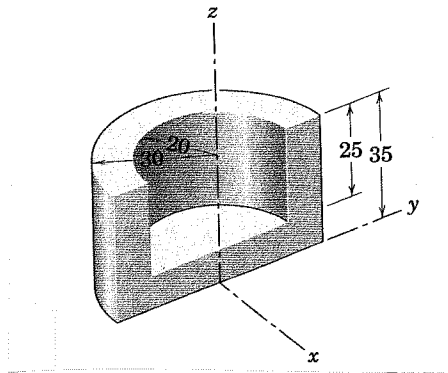
13B

For the area shown below, find the location (\bar{x}, \bar{y}) of the centroid using the given coordinate system.



13C

For the volume shown below, find the location $(\bar{x}, \bar{y}, \bar{z})$ of the center of gravity using the given coordinate system.



- 13D The area shown below is rotated 180 degrees about the z axis.
- Determine the volume generated by this area as it is rotated 180 degrees.
 - Determine the surface area generated by curved line ABC as it is rotated 180 degrees.

