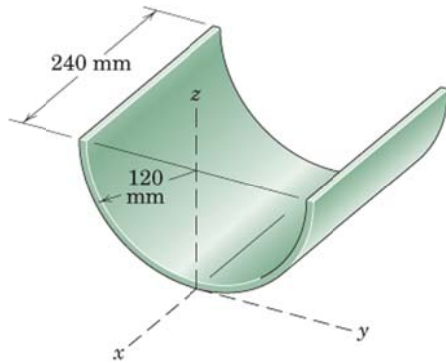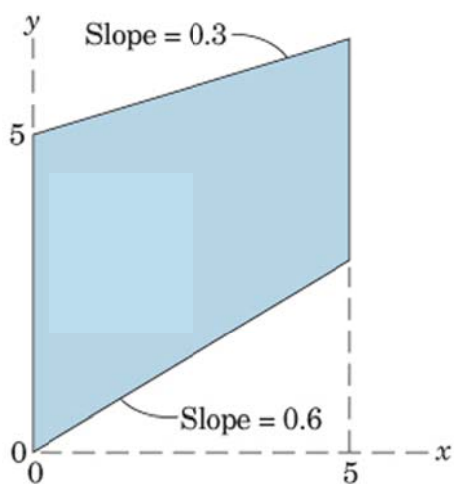5/3

Specify the *x*- and *z*-coordinates of the center of mass of the semicylindrical shell.
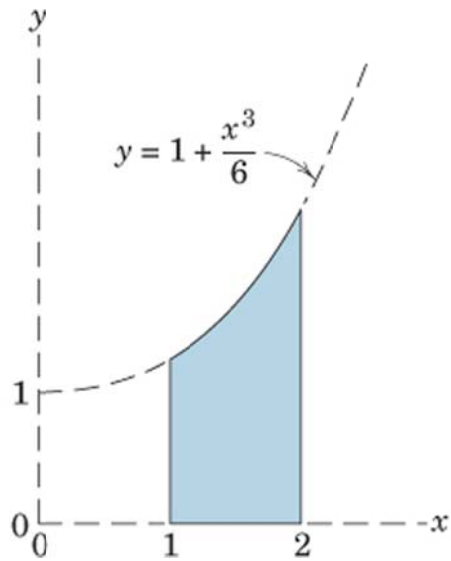

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By direct integration, determine the coordinates of the centroid of the trapezoidal area.
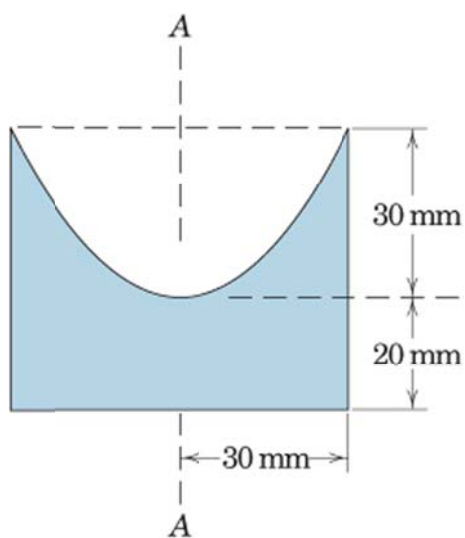
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Determine the *x*- and *y*-coordinates of the centroid of the shaded area.
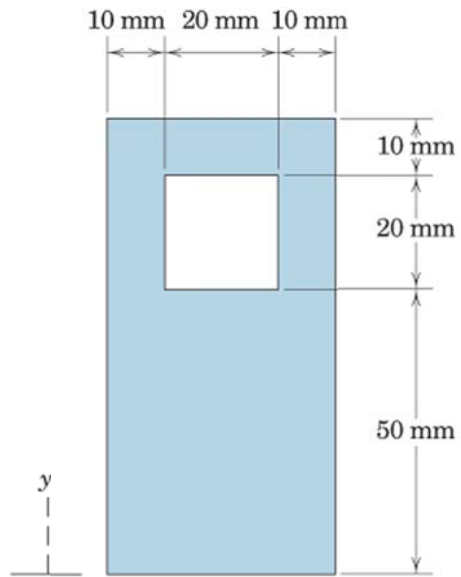
$$y = 1 + \frac{x^3}{6}$$

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The figure represents a flat piece of sheet metal symmetrical about axis *A-A* and having a parabolic upper boundary. Choose your own coordinates and calculate the distance $\bar{h}$ from the base to the center of gravity of the piece.
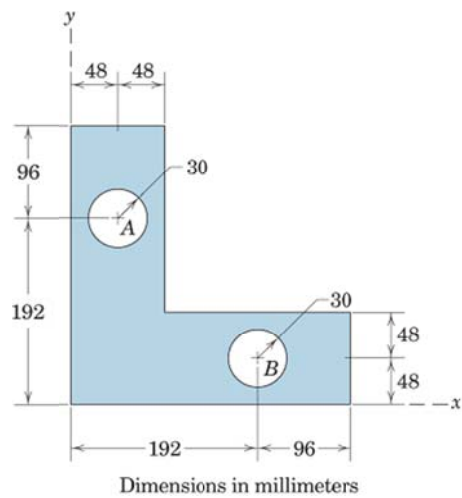
30 mm

20 mm

30 mm

5/45

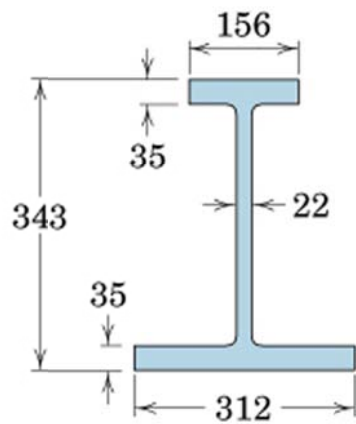Determine the *y*-coordinate of the centroid of the shaded area.

10 mm 20 mm 10 mm

10 mm

20 mm

50 mm

y

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Determine the *x*- and *y*-coordinates of the centroid of the shaded area.

y

48 48

96

30

A

192

-30

48

B

48

—*x*

192

96

Dimensions in millimeters

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Determine the height above the base of the centroid of the cross-sectional area of the beam. Neglect the fillets.

Dimensions in millimeters

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Determine the distance $\bar{H}$ from the bottom of the base to the mass center of the bracket casting.