6-5 Draw a free-body diagram for the curved bar shown in Fig. P6-5.

SOLUTION

The cable at B exerts a tensile force \( T \) on the bar that is tangent to the cable at point B. The action of the pin at support C is represented by force components \( C_x \) and \( C_y \).

6-6 Draw a free-body diagram for the angle bracket shown in Fig. P6-6.

SOLUTION

The action of the pin at support A is represented by force components \( A_x \) and \( A_y \). The roller at B exerts a compressive force \( B \) normal to the surface of the bracket.
6-11 Draw a free-body diagram for the cart shown in Fig. P6-11 which has a weight $\mathbf{W}$.

\[ \text{Fig. P6-11} \]

**SOLUTION**

The cable exerts a force $\mathbf{T}$ on the cart that is tangent to the cable at the point of attachment. The weight $\mathbf{W}$ of the cart acts through the center of gravity $\mathbf{G}$ of the cart and is directed toward the center of the earth. The support surface exerts normal forces $\mathbf{N}_1$ and $\mathbf{N}_2$ on the wheels since the surface is assumed to be smooth.

6-12 Draw a free-body diagram for the lawn mower shown in Fig. P6-12 which has a weight $\mathbf{W}$ and is resting on a rough surface.

\[ \text{Fig. P6-12} \]

**SOLUTION**

The weight $\mathbf{W}$ of the mower acts through the center of gravity $\mathbf{G}$ of the mower and is directed toward the center of the earth. The support surface exerts normal forces $\mathbf{N}_1$ and $\mathbf{N}_2$ and frictional forces $\mathbf{F}_1$ and $\mathbf{F}_2$ on the wheels since the surface is assumed to be rough.
6-26 Draw a free-body diagram for the bar bracket shown in Fig. P6-26. The support at B is a ball and socket joint. The ends of the bars at A and C rest against smooth surfaces.

Fig. P6-26

SOLUTION

The action of the ball-and-socket joint at support B is represented by force components $B_x$, $B_y$, and $B_z$. The smooth surfaces at A and C exert forces $\bar{A}$ and $\bar{C}$ on the bar bracket that are normal to the surfaces.