

- 25% 1. Determine the force in members CD , CF , and GF of the bridge truss shown in figure 1.
- 25% 2. Draw the shear and moment diagrams for the beam in figure 2.
- 25% 3. In figure 3, the 10 kg crate is initially stationary. The coefficients of friction between the crate and the inclined surface are $\mu_s = 0.2$, $\mu_k = 0.16$. Determine how far the crate moves from its initial position in 2 s if the horizontal force $F = 100$ kN.
- 25% 4. In figure 4, two small balls, each of mass m , hang from strings of length L . The left ball is released from rest in the position shown. As a result of the first collision, the right ball swings through an angle ϕ . Determine the coefficient of restitution.

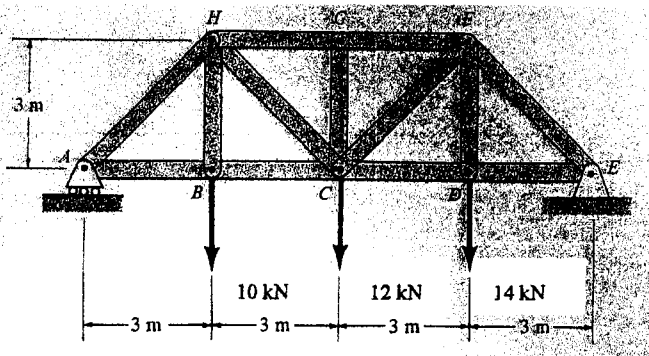


Figure 1.

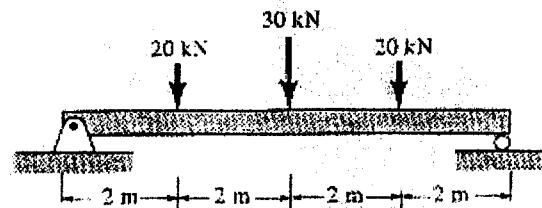


Figure 2.

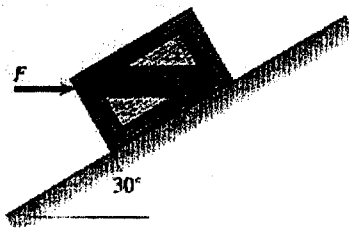


Figure 3.

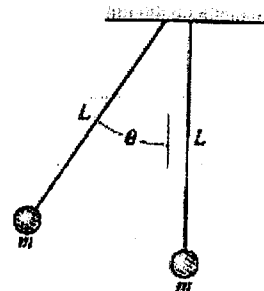


Figure 4.