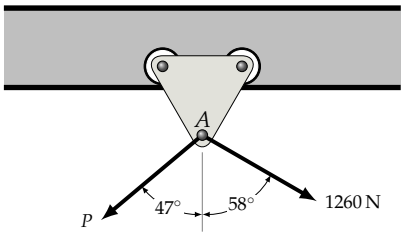
Engineering Statics - 03 Equilibrium of a Particle / Concurrent Forces Handout

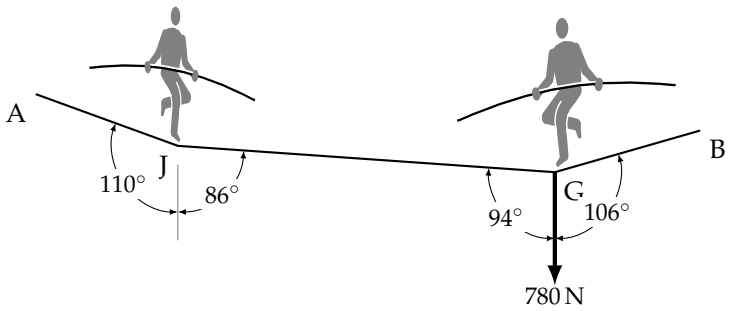
Exercise 1

The trolley can move freely along the horizontal beam on frictionless rollers. Currently, it is in equilibrium. Determine the reaction at A..



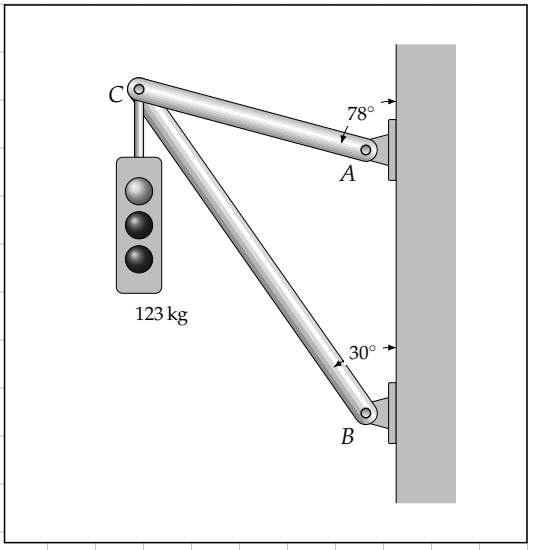
Exercise 2

Jacques and Gilles are high-wire artistes. Gille weighs 780 N.
How much does Jacques weigh?



Example 3

Determine the internal forces in members AC and BC.
Specify whether they are in tension or compression.



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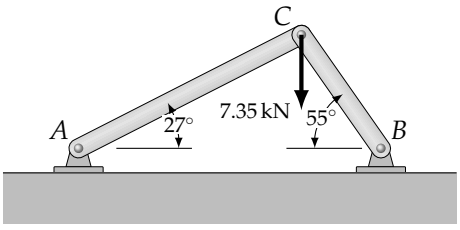
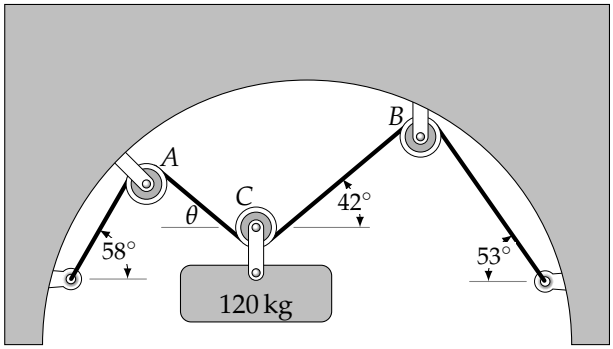


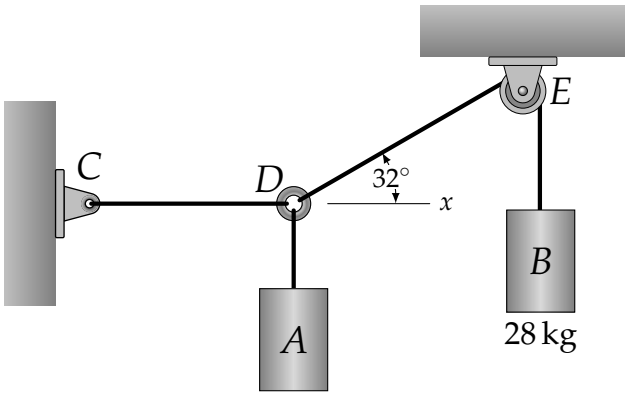
Example 4

Determine θ. Then find the tension in the rope and the pulley reaction at B due to the suspended mass.



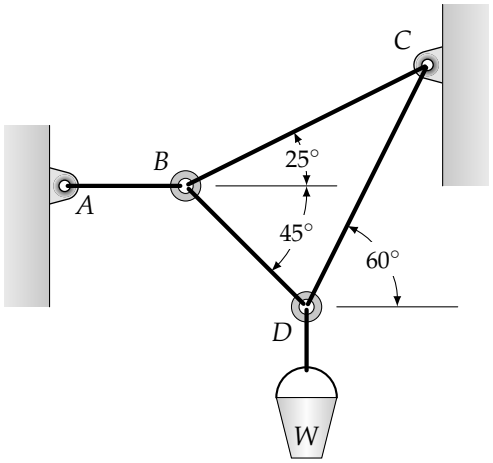
Exercise 4

Cylinder B has a mass of 28 kg. The system is in equilibrium. Determine the mass of A and the reactions at C and E.



Example 5

Determine the maximum weight W of the bucket that the system can support given that no single wire may support more than 450 N. Determine R_C, the reaction at C, for this value of W.



Exercise 5

The tension in cable AC is 400 N. Determine the force F necessary to hold the ring A in the position shown..