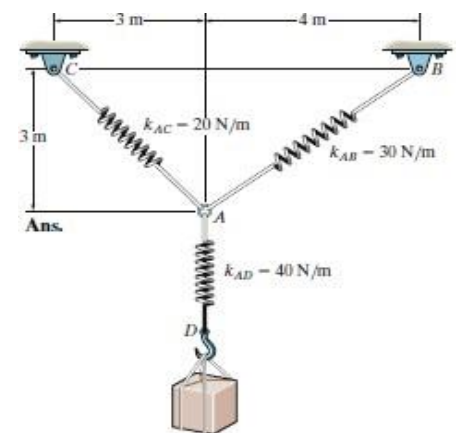
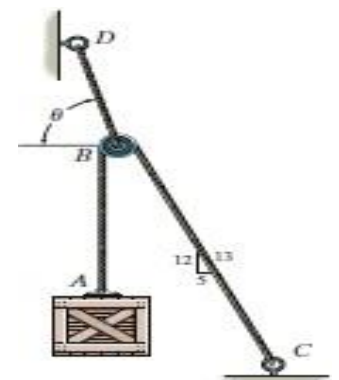




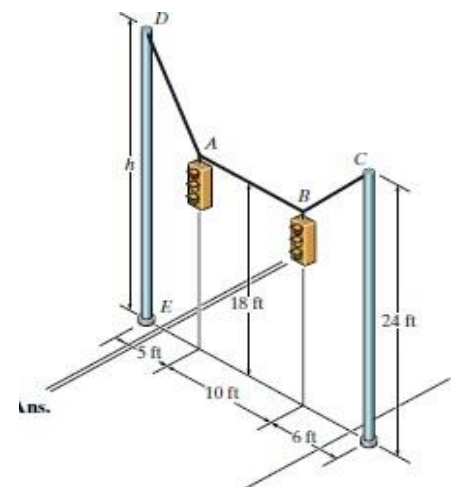
1 - Determine the stretch in each spring for equilibrium of the 2-kg block. The springs are shown in the equilibrium position.



2- The cords ABC and BD can each support a maximum load of 100 lb. Determine the maximum weight of the crate, and the angle θ for equilibrium.



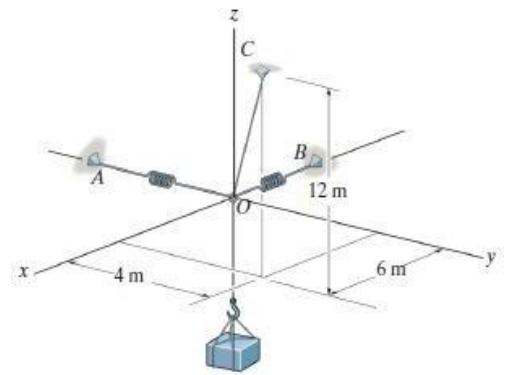
3 - The street-lights at A and B are suspended from the two poles as shown. If each light has a weight of 50 lb, determine the tension in each of the three supporting cables and the required height h of the pole DE so that cable AB is horizontal.



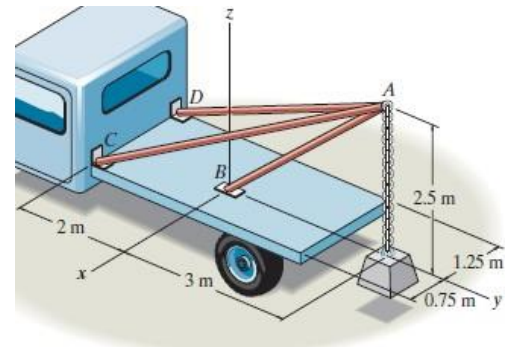
4 - Each cord can sustain a maximum tension of 500 N. Determine the largest mass of pipe that can be supported.



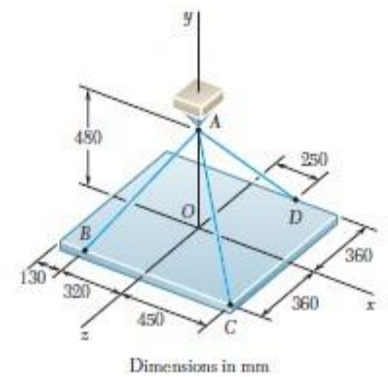
5 - Determine the stretch in each of the two springs required to hold the 20-kg crate in the equilibrium position shown. Each spring has an unstretched length of 2 m and a stiffness of $k = 360 \text{ N/m}$.



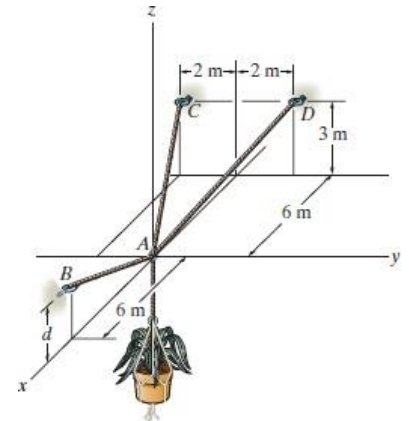
6 - Determine the force acting along the axis of each of the three struts needed to support the 500-kg block.



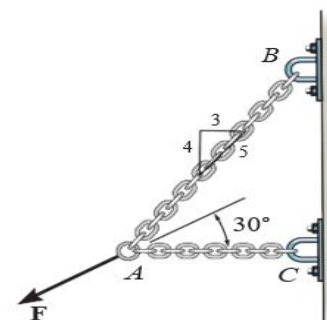
7 - A rectangular plate is supported by three cables as shown. Knowing that the tension in cable AC is 60 N, determine the weight of the plate.



8 - Determine the height d of cable AB so that the force in cables AD and AC is one-half as great as the force in cable AB. What is the force in each cable for this case? The flower pot has a mass of 50 kg.

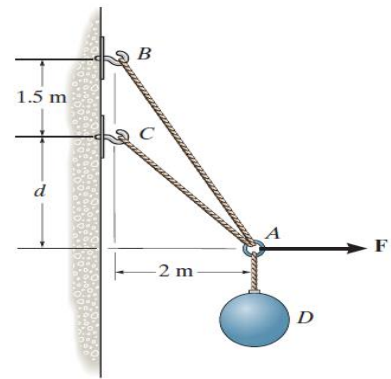


9 - Determine the maximum force $\mathbf{F}$ that can be supported in the position shown if each chain can support a maximum tension of 600 lb before it fails.

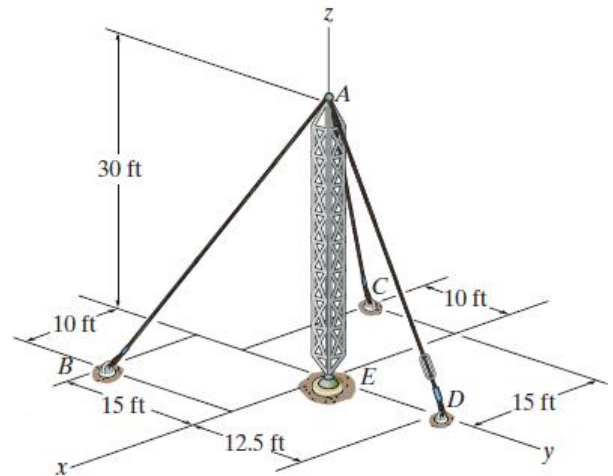


10 - Determine the forces in cables AC and AB needed to hold the 20-kg ball D in equilibrium.

Take $F = 300 \text{ N}$ and $d = 1 \text{ m}$.



11- If cable AD is tightened by a turnbuckle and develops a tension of 1300 lb, determine the tension developed in cables AB and AC and the force developed along the antenna tower AE at point A.



12 - Determine the tension developed in the three cables required to support the traffic light, which has a mass of 15 kg. Take $h = 4 \text{ m}$.

