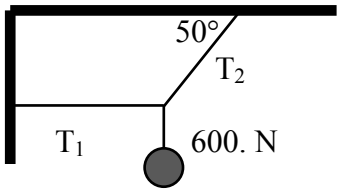
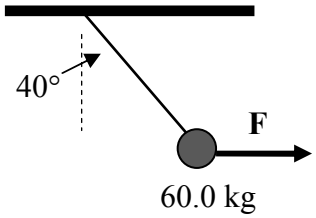
STATIC EQUILIBRIUM WORKSHEET

1. For the situation shown to the right, find the values of T_1 and T_2 if the weight is 600. N.

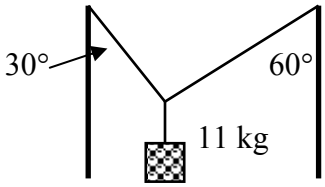


2. 

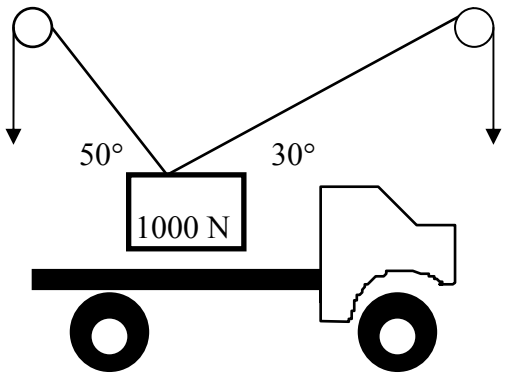
Examine the diagram to the left.
What force **F** is required to keep the 60.0 kg mass in static equilibrium?

3. An 11 kg lamp is supported between two vertical poles by two wires attached as shown to the right.

What is the tension in the *right* wire?

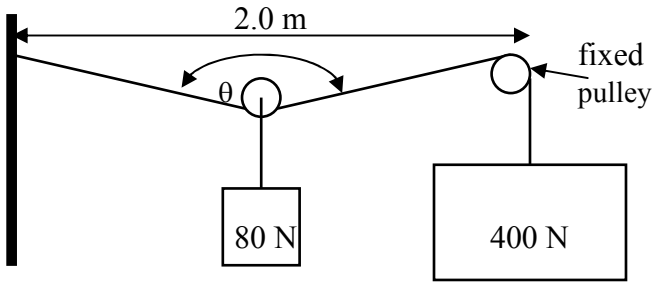


4. Two wires are used to suspend a sign that weighs 500. N. The two wires make an angle of 100° between each other. If each wire is exerting an equal amount of force, how much force does each wire exert?

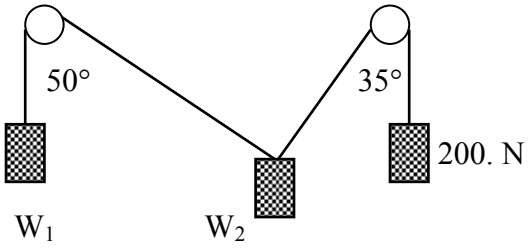
5. 

What must the tension in each cable be in the diagram in order to support the cargo in static equilibrium? Note that pulleys only change the *direction* of the force, not the magnitude.

6. What will the unknown angle θ be in order for the pulley system to the right to be in static equilibrium? Note that the 80 N weight is attached to a free-moving pulley, and the cable is fastened to the wall on the left.



7. In the system to the right, the pulleys are frictionless and the system hangs in equilibrium. Determine the values of each of the unknown weights.



8. The following forces pull on a ring along the same plane (i.e. *coplanar*): 200 N at 30° E of N, 500 N at 10° N of E, 300 N at 60° W of S, and an unknown force that keeps the ring in equilibrium. Find the magnitude and direction of this unknown force.

1. 503 N, 783 N 2. 493 N 3. 54 N 4. 390 N 5. 653 N, 879 N 6. 169° 7. 260 N, 150 N 8. 350 N at 18° S of W