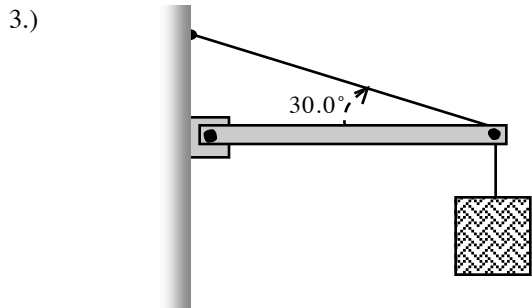


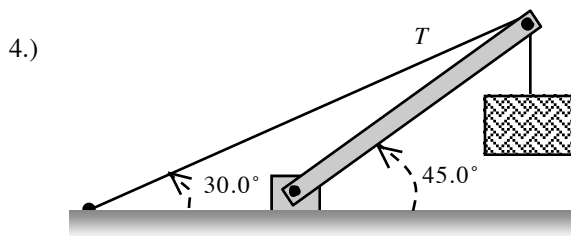
**AP Physics C
Static Equilibrium HO 25.1**

1.) A uniform board of weight 40 N and length 8.0 m supports two children weighing 500 N and 350N. If the support is at the center of the board and the 500 N child is 1.5 m from the center, what is the position of the 350 N child?

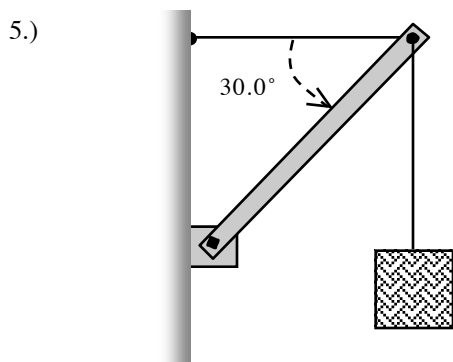
2.) A 10 m uniform beam of weight 100 N is supported by two ropes at the ends. If a 400 N person sits at 2.0 m from the left end of the beam, what are the tensions in the ropes?



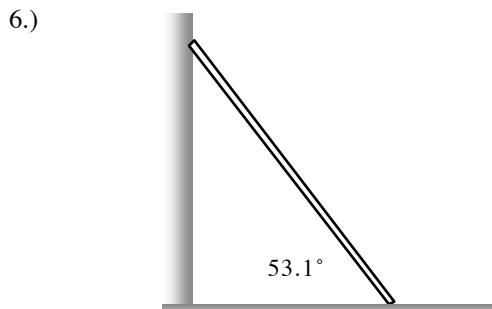
Find the tension T and the magnitude and direction of the force exerted on the strut by the left pivot in the arrangement shown to the left. The weight of the suspended object is 100 N. The strut is uniform and also has a weight of 100 N.



Find the tension T and the magnitude and direction of the force exerted on the strut by the bottom pivot in the arrangement shown to the left. The weight of the suspended object is 100 N. The strut is uniform and also has a weight of 100 N.



Find the tension T in the and the magnitude and direction of the force exerted on the strut by the bottom pivot in the arrangement shown to the left. The weight of the suspended object is 100 N. The strut is uniform and also has a weight of 100 N.



Rat is climbing a ladder that is 5.0 m long and weighs 180 N. Rat, who weighs 800 N, stops a third of the way up the ladder. The bottom of the ladder rests on a horizontal surface and leans against a wall that frictionless. The ladder makes an angle of 53.1° with the horizontal.

- a.) Find the normal and friction forces on the ladder at its base.
- b.) Find the minimum coefficient of static friction needed to prevent slipping at the base.
- c.) Find the magnitude and direction of the contact force on the ladder at the base.