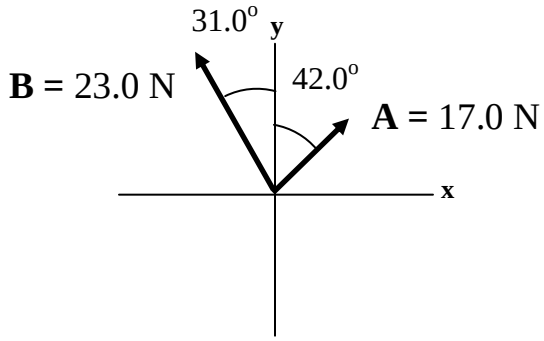
Name_____

Favorite Book_____

Show your equations of equilibrium, and circle your answers and use sig figs to receive full credit.

1. Find the **E**quilibrant (The third force that would cause translational equilibrium) – express it as an angle magnitude vector. Draw it with its tail on the origin, and label its magnitude, and an angle with one of the axes. Write your answer with 3 sig figs, but carry at least 4 so you don't make rounding errors.

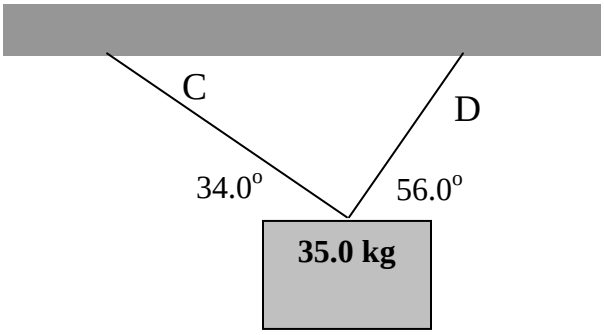


Draw your picture here:

X:

Y:

2. Find the tensions in the cables C and D. Set up your x and y equations where indicated and solve.



X:

Y:

IB Physics
FA9.2 - Tors. Equil. and Center of Mass

Name_____

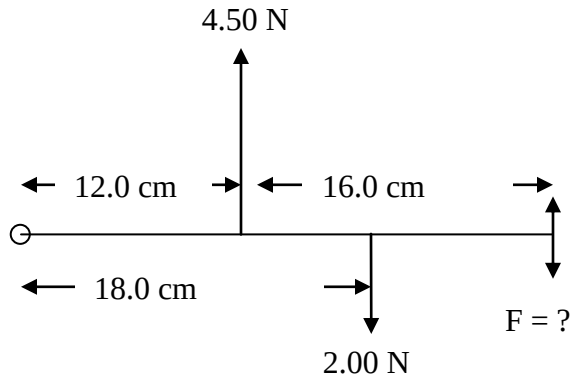
Favorite Book Character_____

Show your equations of equilibrium, and circle your answers and use sig figs to receive full credit.

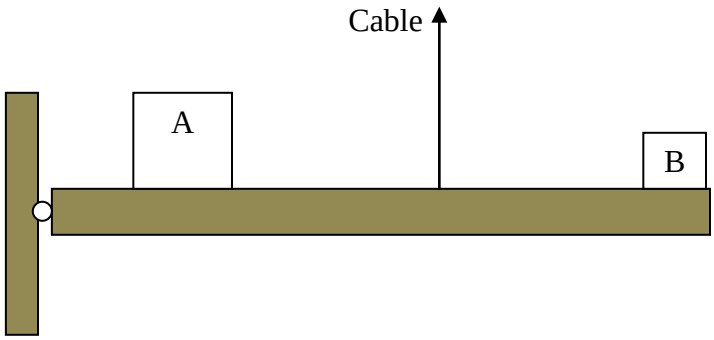
1. A 130. gram uniform meter stick has a 22.0 g clamp on the 23.0 cm mark, where would you clamp a 35.0 g clamp to make the meter stick balance at the 52.0 cm mark?

2. A uniform 320. g rod is 210. cm long, and has a 120. g mass 60.0 cm from the left end. What mass must you put 190. cm from the left end so that it balances at 140. cm from the left?

3. What force in what direction would put this system in torque equilibrium about the pivot?



4. The beam is uniform and 12.0 m long with a mass of 82.0 kg. Box A is centered 3.00 m from the left side, and has a mass of 25.0 kg, and box B is 0.500 m from the right side and has a mass of 15.0 kg. If the vertical cable has a tension of 937 N, how far is it attached from the left side?



IB Physics
FA9.3 - Trans. and Tors. Equilibrium

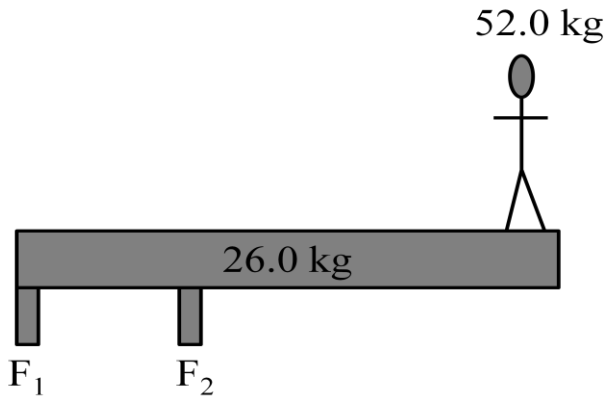
Name_____

Favorite Book Series_____

Show your equations of equilibrium where indicated, and circle your answers and use sig figs to receive full credit.

1. The uniform beam is 6.80 m long, and the person is standing 0.300 m from the right side, F_1 is exerted at the left end, and F_2 is exerted 1.80 m from the left side. Calculate the magnitude and direction of F_1 and F_2

Y:



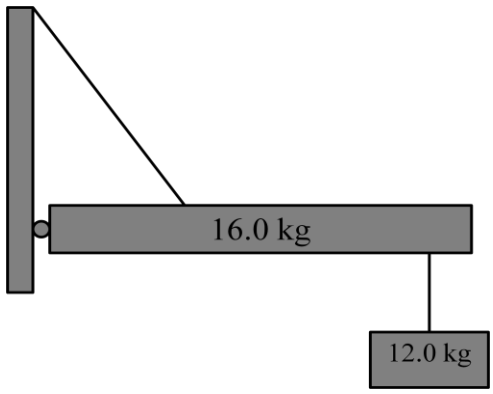
F_1 =

F_2 =

Γ:

2. The uniform beam is 6.20 m long, and the supporting cable attaches 2.00 m from the left side, and makes a 52.0^o angle with the beam. The mass hangs 0.700 m from the right side. Find the tension in the cable, and the horizontal and vertical components (magnitude and direction) of the force exerted by the wall.

X:



T =

W_x =

W_y =

Y:

Γ: