Name _____ Pd ___ Date _____

Physics: Angular Motion Torque Worksheet #2

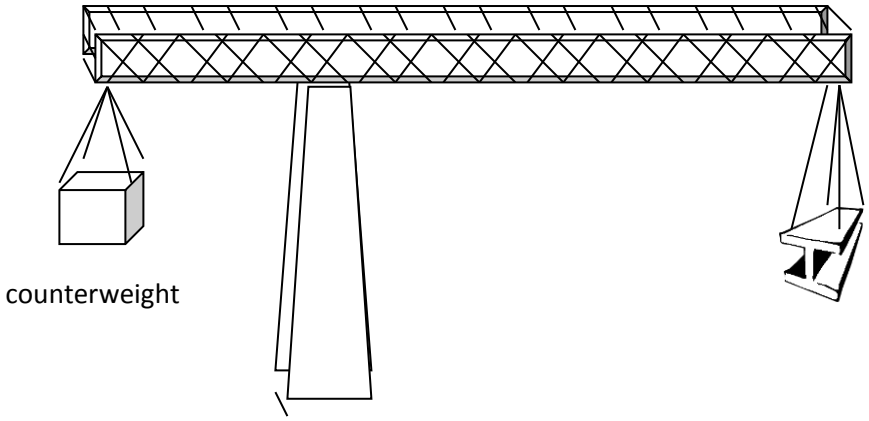
1. A 0.15 kg meter stick is balanced with the pivot point at the 18 cm mark. A weight of 3.2 N is hung from the shorter end. Where the weight should be positioned in order to balance the meter stick?

2. Two girls are sitting on the same side of a see-saw. One girl is 28 kg and sitting 2.4 m away from the middle. The other girl is 35 kg and 2.6 m away from the middle. Their dad can balance them out if he sits 2.0 m away from the middle on the other side. What is their dad's mass?

3. A boy and a girl have masses of 45 kg and 32 kg respectively. Both are balanced on opposite ends of a 5.0 m long wooden plank with a mass of 16 kg. At what point along the plank does the pivot point have to be?

4. A 2400 kg bridge with a length of 24.0 m is supported by a pillar on opposite ends. If a car with a mass of 960 kg is parked 5.0 m from one end, what is the force on each pillar?

5. Construction cranes are able to balance heavy loads by using a counterweight. The crane operator can slide the entire torque arm horizontally in order to balance the load. If the torque arm has a total length of 56m and a mass of 750 kg, and the counterweight has a mass of 2500 kg, where should the operator position the pivot point to balance an 860 kg object?



6. A 9250 kg bridge going east-west is supported by two pillars. The bridge is 47.0 m long with a pillar 5.0m from the west end and 10 meters from the east end. How much force is applied on each of the pillars?

7. A 1720 kg truck drives across the same bridge going east to west. How much force is applied on each pillar when the truck is 12 m across?

8. A pole with a mass of 12 kg and a length of 4 meters is attached to the side of a building pointing upward at a 60° angle. A 33 kg mass is hung at the end of the pole. The mass is uniformly distributed throughout the pole. What is the torque at the attachment to the building?