**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?

12.0 cm

16.0 cm

4.50 N

F = ?

18.0 cm

2.00 N

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?

A

B

Cable