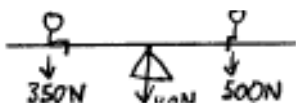AP Physics: Torque 2 Problems   Name:_____

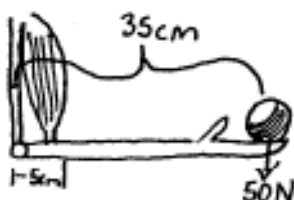Directions: Please show your work for full credit.

1. A 40N uniform teeter totter supports two children weighing 500n and 350. If the fulcrum is under the center of gravity and the 500n child is 1. 5m from the center where should the 350n child sit from the center? How hard must the fulcrum push up?

_____m

_____N

350N   fulcrum   500N

2. A 50n weight is held in the hand as shown. The biceps attaches 5cm from the joint and the weight is 35cm from the joint. If the arm is held still and level, find the upwards force the biceps pulls on the ulna and the downwards force on the upper arm acting on the joint.

_____ n up

_____ n downwards

35cm

5cm   50N

3. A window washer is standing on a scaffold supported by vertical ropes at each end. The scaffold weighs 200n and is 3m long. What is the tension in each rope when the 700 n worker stands 1m from one end?

_____ rope far

_____ n rope near

-1m -

4. A meterstick supported at the 50cm mark has a 300g mass hanging at the 10cm mark and a 200g mass at the 60cm mark. Find the position and mass a person would need to balance the system.

300   200

_____ g

_____m