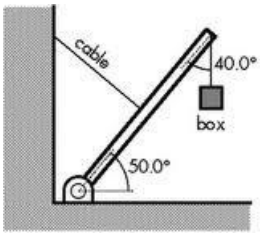
Name: _____ Date: _____

WS 2.5B: Rotational Equilibrium II

Unit 2: Dynamics and Equilibrium

1. A 20 kg uniform beam 10m long is attached to a wall with a cable. The cable is attached to the middle of the beam at 90º to the beam. A box of mass 50 kg is suspended from the beam as shown.

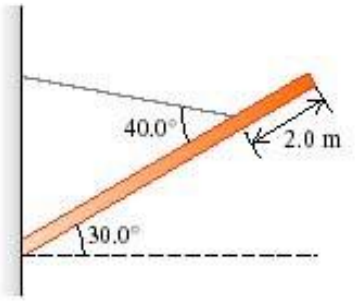


   a. Draw a free body diagram labelling all the forces acting on the beam (include the forces acting on the floor hinge). Choose and label an appropriate pivot point "P". Label all distances from this point.

   b. Determine the tension in the cable.

   c. Determine the force acting on the hinge at the bottom.

2. An 8m long beam of mass 30kg is supported at an angle of 30º above the horizontal with a cable as shown. Determine the tension in the cable. Show all work and label all forces on the diagram.



***Answers**: **1:** (b) 756 N (c) 613 N **| 2**: 264 N*