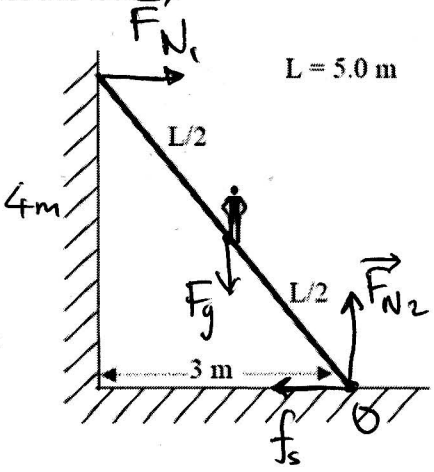
PHYS101
QUIZ#10 - CHAPTER 11
DATE: 9/12/12

Name: Key Id#: Sect#

A man weighing 720 N stands halfway up a 5.0 m ladder of negligible weight. The base of the ladder is 3.0 m from the wall as shown in the figure. Assume that the wall-ladder contact is frictionless. With what force does the wall push against the ladder?

$$\tau_O = F_g \times 1.5 - F_{N_1} \times 4 = 0$$

$$F_{N_1} = \frac{720 \times 1.5}{4} = \boxed{270\,N}$$



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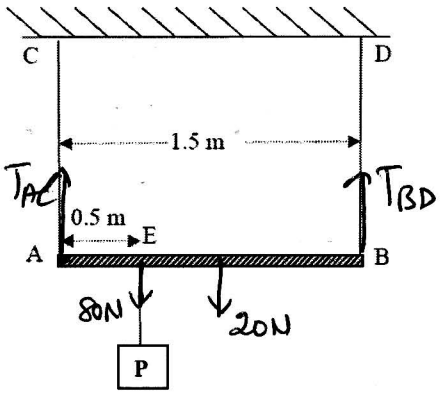
A uniform rod AB is 1.5 m long and weighs 20 N. It is suspended by wires AC and BD as shown in the figure. A block P weighing 80 N is attached at E, 0.50 m from A. Calculate the tension in the wire BD.

$$\tau_A = -80 \times 0.5 - 20 \times 0.75 + T_{BD} \times 1.5 = 0$$

$$T_{BD} = \frac{55}{1.5} = \boxed{36.7\,N}$$



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A horizontal uniform beam of weight W = 200 N and length L = 6.0 m is supported by a hinge and a cable as shown in the figure. The system is in equilibrium. Find the tension in the cable.

$$\tau_o = -3 \times 200 + T \times 6 \times \sin 150^\circ = 0$$

$$T = \frac{600}{3} = \boxed{200\,N}$$