Help Session 6-(Fuad Enaya)
22/12/2004
CH # 13&14

Q1. **Fig 9 shows a stationary 50 N uniform rod (AB), 1.2 m long, held against a wall by a rope (AC) and friction between the rod and the wall. Find the force (T) exerted on the rod by the rope.**

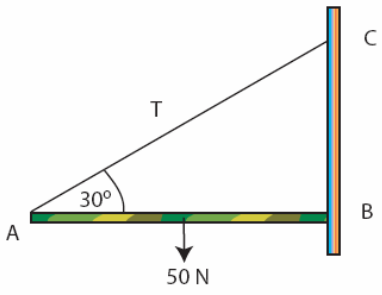

Figure 9

(Correct Ans. 50 N)

Q2. **A wire stretches 1.0 cm when a force F is applied to it. The same force is applied to a wire of the same material but with twice the diameter and twice the length. The second wire stretches:**

(Correct Ans. 0.50 cm)

Q3. **A 240 N weight is hung from two ropes AB and BC as shown in Fig 3. The tension in the horizontal rope AB is:**

(Correct Ans. 416 N)

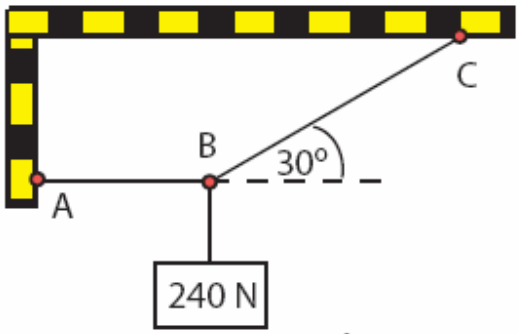

Figure 3

Q4. **Four equal masses, 2.0 kg each, are placed at the four corners of a square of side 10 cm as shown in Fig 7. What is the magnitude of the gravitational force on one of the masses due to the other three?**

(Correct Ans. 5.1 x 10 $^{-8}$ N)

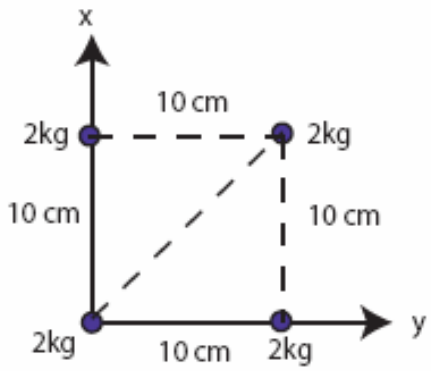

Figure 7

Q5. **The escape speed from a certain planet for an empty spaceship of mass M is 2.0 x 10^4 m/s. What is the escape speed for a fully loaded spaceship which has mass = 3M ?**

(Correct Ans. 2 x 10 ^{4} m/s)

Q6. **The gravitational acceleration at the surface of Earth = 9.8 m/s^2. Find the gravitational acceleration at an altitude equal to 3 times the radius of earth.**

(Correct Ans. 0.6 m/s^2)

With My Best Wishes

Fuad