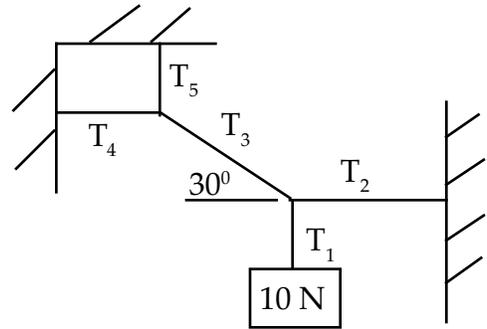
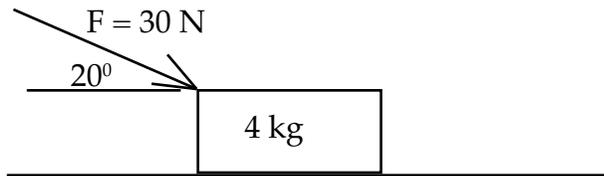


Newton's Laws - Quiz 4.0H

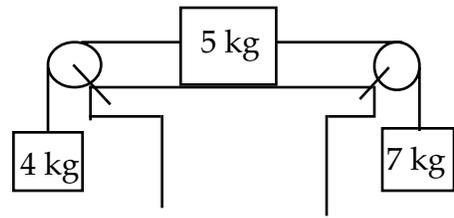
1. Find the tension in each of the five ropes shown here tied to two knots.



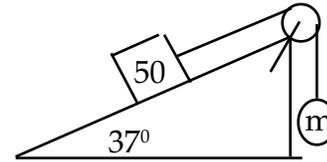
2. Find the acceleration of the 4 kg block if the kinetic coefficient of friction is .2 for the floor and block.



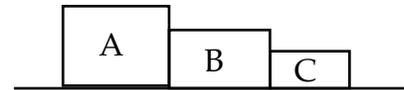
3. Find the acceleration of the blocks and the tensions in each string. $\mu_k = .3$ for the block and table.



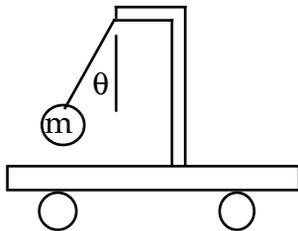
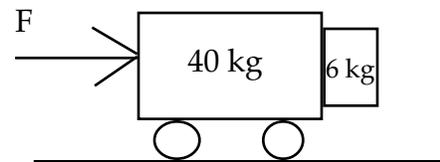
4. For what values of m (mass) will the 50 kg block remain at rest if $\mu_s = .5$ is the static coefficient of friction?



5. If a 60 N horizontal force is applied to block A, find (i) the contact force of A on B and (ii) the contact force of B on C. If a 60 N horizontal force is applied to block C on the other side, find (iii) the contact force of C on B. Assume no friction on the table top. $m_A = 6$ kg, $m_B = 4$ kg and $m_C = 2$ kg.



6. A 6 kg brick is placed on the end of a 40 kg cart which is being pushed by a force, F . (a) What minimum acceleration will just keep the brick from slipping? (b) What is the associated force, F ? $\mu_s = .6$ is the static coefficient of friction between the brick and the cart. No floor friction.



7. What is the acceleration of the cart shown at left? The mass is 5 kg and makes an angle of $\theta = 12^\circ$ with the vertical. What is the tension in the string from which the mass hangs?

8. Find the tension in the string and the accelerations (a_1 vs a_2 ?) of the two masses. The pulleys are frictionless and of negligible mass. There is friction between the 8 kg block and the table, $\mu_k = .2$

