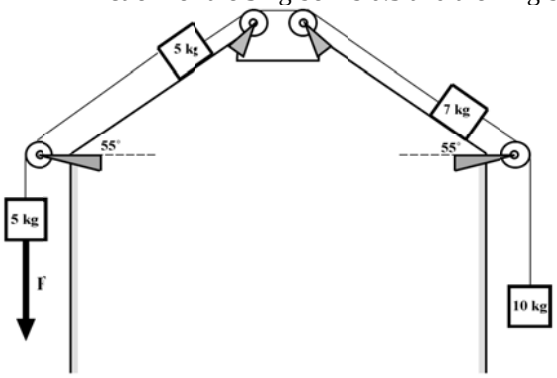
Name:_____ Date:_____

Mr. Croom's Physics Chapter 4: Force and the Law of Motion

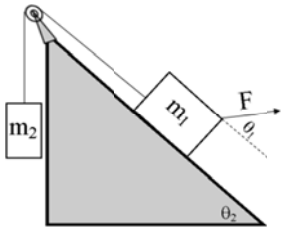
Advanced Force Problems 2

Solve the following problems

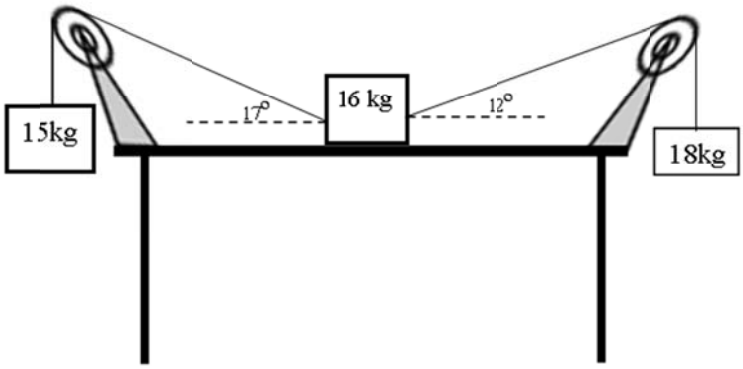
1. Based on the picture below what is the force (**F**) required to accelerate this system at 2m/s to the left if the coefficient of friction for the 5 kg box is 0.3 and the 7 kg box is 0.5?



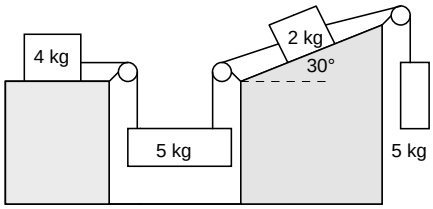
2. If m_1= 50 kg, m_2=80kg, F= 80N, θ_1=15°, and θ_2=35°, μ_k = 0.2 what is the acceleration of the system?



3. If the system moves to the right at 0.12 m/s^2, what is the coefficient of friction? What is the tension in each rope?



4. Calculate the coefficient of static friction and the tension in each string of the situation below, if the system is at rest. (assume both tables and blocks are identical materials.



5. Now assume the blocks in problem 2 are accelerating towards the middle at 0.3 m/s^2, what is the coefficient of kinetic frictions?

6. If m_1= 74 kg, m_2=98kg, θ_1=8°, and θ_2=15°, what is the coefficient of friction if the system is moving at a constant rate?