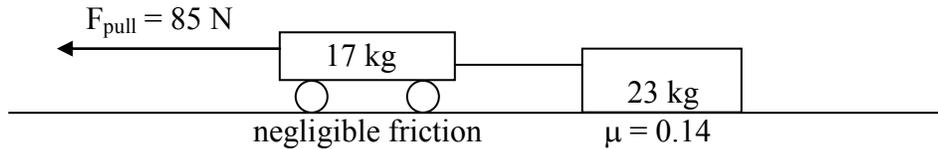
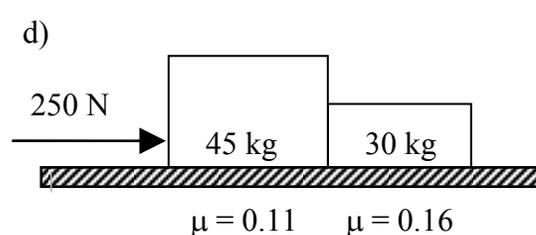
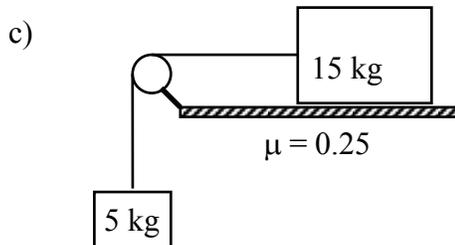
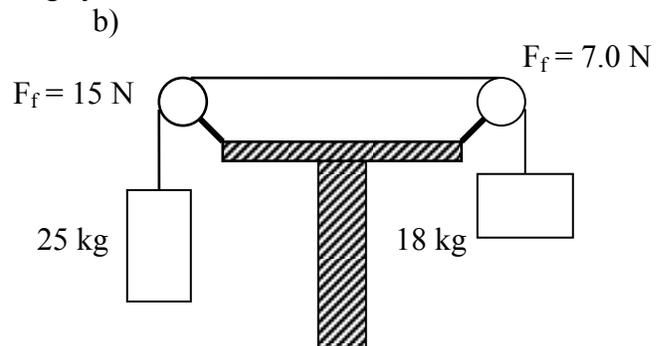
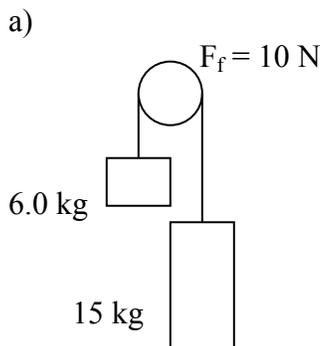


PHYSICS 11 FORCES & NEWTON'S LAWS WORKSHEET 4

- Two boxes of mass 12 kg and 10 kg are resting on a frictionless surface and connected by a lightweight cord. The 12 kg mass is pulled by a force of 40 N. Calculate the acceleration of the system.
- Find the acceleration of the system below:



- Three small children of mass 20.0, 24.0 and 16.0 kg hold hands and are pulled across a frozen pond (assume no friction) by a larger Physics 11 student who is on skates (physics students always help out those in need). The student pulls on rope attached to the 20.0 kg child with a force of 135 N. Calculate the acceleration of the group.
- Three children argue over a 15 kg wagon, and a tug-of-war breaks out. The largest child pulls on one side with a force of 35 N, while the other two pull from the other side each with a force of 30 N. If $\mu = 0.12$ between wagon and ground, determine the resultant acceleration.
- Can an applied force of 400 N move a 75 kg object sitting on a surface with $\mu_s = 1.2$? Explain your answer.
- Calculate the acceleration of the following systems:



1. 1.8 m/s^2 2. 1.3 m/s^2 3. 2.3 m/s^2 4. 0.49 m/s^2 in direction of two smaller kids 5. no; needs to overcome a friction force of 882 N 6. a) 3.72 m/s^2 b) 1.08 m/s^2 c) 0.61 m/s^2 d) 2.06 m/s^2