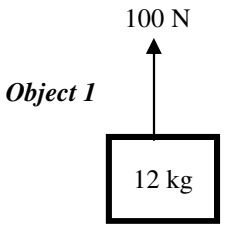
PreAP Physics: Due 10/16

1. From Newton's second law we know that a net force causes acceleration. So if $F_{net} = 0$, then a = ___.
2. On your equation sheet find the basic equation for acceleration. If $F_{net} = 0$, then Δv = ____.
3. So, can an object be moving if there is no net force (remember the two masses on the pulley)? (Give reasons for or against.)

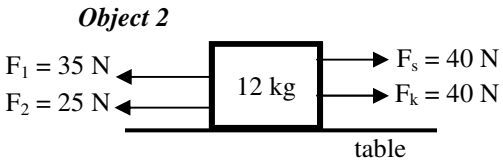
4. Remember our discussion on friction. Must an object be at rest if $F_{net} = 0$? (Give reasons for or against.)

5. Read my notes on equilibrium. An object thrown into the air does what at the top?

   Is it at equilibrium at that point. (Give reasons for or against.)



6. Object 1 is in the air and has a 100 N force pulling up on it.
   Find the acceleration on the object. (There may be more forces present.)



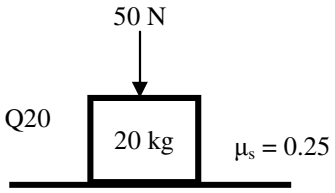
Use Object 2 to answer Questions 7-15.

7. How much force is necessary to move the object?
8. What do we call this force? (Be specific.)
9. How much force will resist it once it moves?
10. What do we call this force? (Be specific.)
11. There are two forces missing on the object. What are they?
12. Find the weight of the object.
13. Will the object move (and why)?
14. Calculate the object's acceleration.

15. Calculate μ_s and μ_k for this situation (and "yes" you do have enough information).

16. Which is always bigger: kinetic or static friction?
17. Why?

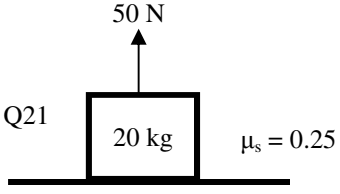
18. What two things increase how much friction an object feels (we talked about this during class)?



More about Normal force…

19. A 20 kg object sits on a desk.
    A) What is the normal force pushing up on the object?
    B) Find F_s.

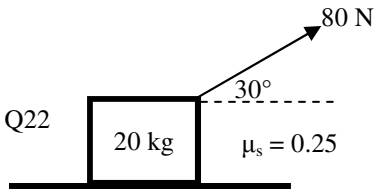
20. A person pushes down on the 20 kg object with 50 N of force.
    How much normal force does the table have to give the object now?
    A) What is the normal force pushing up on the object?
    B) Find F_s.



21. A person pulls up on the object with 50 N of force.
    How much normal force does the table have to give the object now?
    A) What is the normal force pushing up on the object?
    B) Find F_s.

Using what you just learned…

22. If the force is pulling up on the object at a 30° angle.
    A) The normal force is in what direction?
    B) Is the 80 N force increasing or decreasing the normal force?
    C) What portion of the force is pulling in the normal force direction?



D) Calculate the normal force pushing up on the object.

E) Find F_s.

BIG HINT: Redraw the diagram with the Fn and Fs you just found.

F) What portion of the 80 N force is pulling to the right? Find it and draw it.