A-Day: due Fri., 10/26 (Assigned 10/24)
B-Day: due Mon., 10/29 (Assigned 10/25)

2007 Forces 3

Variable	Units	Name	Notes
F_N	N	Normal Force	Always $\perp$ to the surface
T	N	Tension	Is = throughout rope or string

Study helps available for Force Diagrams.

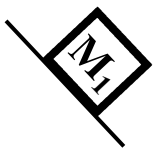
1. A 6 kg object is moving 3 m/s to the left. After 8 seconds it ends up 3 m to the right of its initial position.
   A. Find the acceleration of the above object.
   Variables: Equation:

   B. Find the net force on the object.

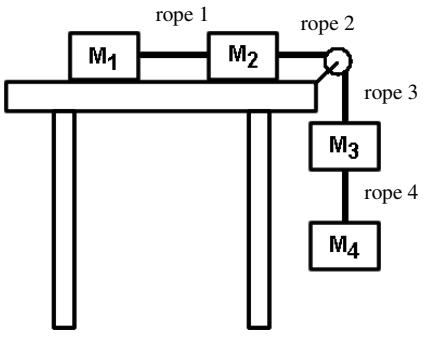
2. F, T, F_W, F_f, or F_N?

   A. _____Due to a string.
   B. _____Opposes weight for objects on surfaces.
   C. _____You push down on an object on a table, this increase.
   D. _____Caused by gravity.
   E. _____Would decrease on the moon.
   F. _____Decreases if a surface is smooth.
   G. ____ You place a heavy object onto a board. The board will break if this is too small.
   H. ____ Always vertical.
   I. ____ If a surface is tilted, this changes direction, too.
   J. ____ Has the units of newtons.
   K. ____ Doesn't exist for hanging objects.

3. Draw the force diagram for M_1 if it is sliding down a ramp and there is friction.



4. Use the diagram at the right to answer the following:
   A. Draw the force diagram for M_4 if there is friction.



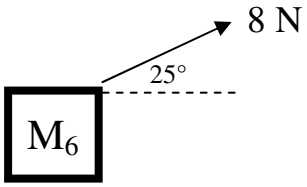
   B. Write two Newton's second law equations for M_2 at the right if there is no friction on the table.

   Vertical Horizontal

More on Back

5. What are the two ways to find the net force on an object?

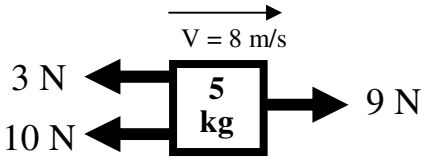
6. For M_6 at the right, find the x and y components of the 8 N force.



7. If M_6 = 250 N, what is its weight?

8. The 5 kg object is moving 8 m/s to the right.
   A. Is it speeding up or slowing down to the right?

   B. Calculate its acceleration.



9. For the 5 kg object, what is its weight?

10. On M_8, which is greater T or F?
    A. ___ If friction is to the left?
    B. ___ If it is accelerating to the right?
    C. ___ If it is at constant speed?
    D. ___ If it is speeding up to the left?
    E. ___ If friction is to the right?
    F. ____ If it is slowing down to the right?
    G. ___ If Vi = 0 m/s and Vf = -4 m/s?

11. If M_8 = 35 kg, T = 50 N, and F = 65 N,
    A. What is its weight?
    B. Find the acceleration of M_8.

12. Three objects of 2 kg, 3 kg, and 5 kg.
    A. Which one has more inertia?
    B. If a person pushes each of them with 20 N of force, which one accelerates the most?