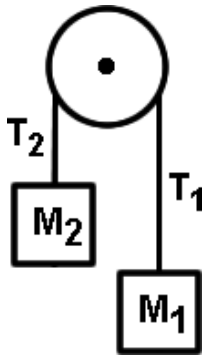
A-Day Due Tues., Oct 31 (Assigned: 10/26)
B-Day: Due Wed., Nov 1 (Assigned: 10/27)

Forces 6



1. What is normal force?
2. What is the normal force for both of the two masses at the right?
3. Draw all of the forces on Mass 1 (called a free-body diagram).

M_1

4. Draw the free-body diagram for Mass 2.

M_2

Since we don't yet know the masses, we don't know for sure which way it will move.
So, let's choose right to be positive. Draw it on the diagram, so you know which way is positive for both masses.

5. Which direction is positive for Mass 1: up or down?
6. Which direction is positive for Mass 2: up or down?
7. For which mass will weight be negative?
8. Write the F = ma equation for Mass 1 ***in the direction of motion***.

9. Write the F = ma equation for Mass 2 in the direction of motion.

10. Since there is only one rope, the tension is the same. Also, it should be obvious that the two objects will have the same acceleration, because they are connected. So, use these facts to solve for the acceleration of the system. (T = T and a =a Use $m_1 = 3$ kg and $m_2 = 6$ kg). [If you get a negative number, that means it is going the other way.]

11. For the above problem, now that you have acceleration, find the tension in the rope.

12. Is it always good to kill bacteria? Why or why not?

13. What happens if we use too many antibiotics?

14. There are two unicellular organisms in a Petri dish. If the nucleus from Organism A is removed and the DNA from Organism B is inserted into A, what characteristics will Organism A have when it reproduces? A or B?

More on Back
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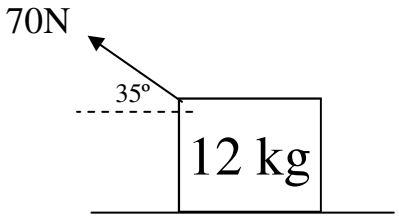

$\mu_s = 0.2$
$\mu_k = 0.12$

Use the above diagram to answer the following.

15. In which direction is the normal force: x or y?
16. In which direction is friction: x or y?
17. Give the equation for friction:
18. What quantity (variable) needed for friction comes from the y-direction?

19. For the above problem you need to find how many equations?
20. Write your Newton's Second Law equations for this problem.

21. Will the object will move or not?
    If it moves find the acceleration.
    If it doesn't move find how much more force is necessary to move it.-

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