

Forces Homework 5

Name: _____

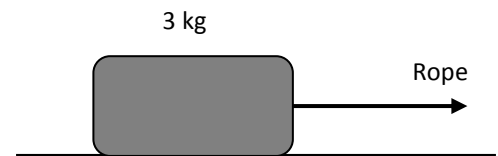
Hour: _____ Date: _____

1. A big, heavy truck is cruising down Mack at 35 mph. The brakes fail and the truck runs into the back of a small, light VW – Beetle at rest, causing serious damage to the Beetle, but very little to the truck. Which exerted more force; the truck on the car or the car on the truck? Justify your answer.

2. The Earth is pulling down on you with 600 N of force. What is the other half of this Newton's 3rd Law force pair?

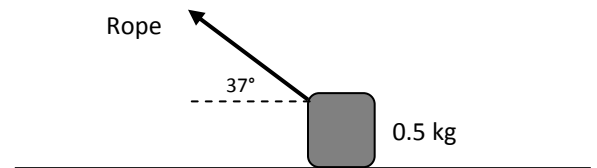
It takes 6.0 N to start the 3 kg block moving and 4.0 N to keep it moving at a steady speed.

3. Draw a force diagram for the block at rest.
4. What is the coefficient of static friction between the block and the table?
5. What is the coefficient of kinetic friction between the block and the table?
6. The block is then pulled with a steady 7.0 N. Draw a force diagram for the sliding block.
7. Find the acceleration of the block.



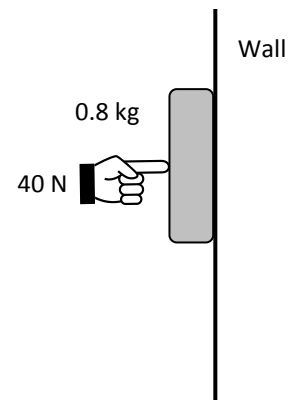
A 0.5 kg block is pulled along a rough surface with a force of 5 N at an angle of 37° with the horizontal. The coefficient of kinetic friction between the block and the surface is 0.30 and the block accelerates to the left.

8. Draw a force diagram for the block.
9. Find the normal force between the block and the surface.
10. Find the frictional force between the block and the surface?
11. What is the acceleration of the block?



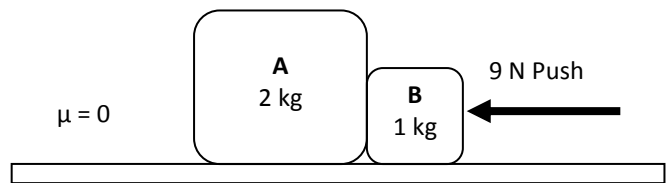
A hand pushes a 0.8 kg block horizontally against a wall with a force of 40 N. The coefficient of static friction between the block and the wall is 0.10 and the coefficient of kinetic friction between the block and the wall is 0.08.

12. Draw a force diagram for the block.
13. Find the acceleration of the block.
14. With what force would the hand need to push the block against the wall to keep it stationary?



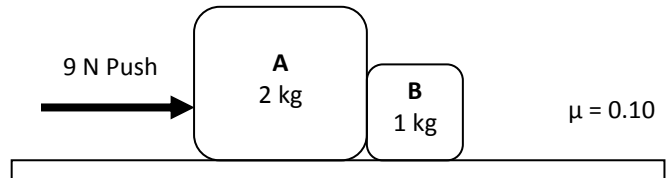
Two blocks are pushed to the left by a 9 N force along a frictionless surface.

15. Draw the correct force diagrams for the blocks.
16. Calculate the acceleration blocks.
17. Find the force of A on B and the force of B on A.



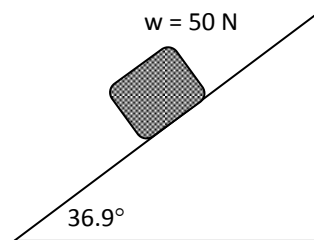
Two blocks are pushed to the right by a 9 N force along a rough surface. The coefficient of friction between the blocks and the surface is 0.10.

18. Draw the correct force diagrams for the blocks.
19. Calculate the acceleration blocks.
20. Find the force of A on B and the force of B on A.



A 50 N block sits on a ramp and remains motionless.

21. Draw the correct force diagram for the block.
22. Find the normal force between the block and the ramp.
23. Find the frictional force between the block and the ramp.
24. Find the coefficient of friction between the block and the ramp.



A 34 N block accelerates down a ramp as shown. The coefficient of friction between the block and the ramp is 0.307.

25. Draw the correct force diagram for the block.
26. Calculate the acceleration block.

