

Name: _____

Period: _____

Newton's Laws and Forces Review

1. Moving? Yes, No, or Maybe?
 - A. An object at constant speed?
 - B. An object with a net force?
 - C. An object with friction?
 - D. An object at equilibrium?
 - E. An object with a force acting on it?
 - F. An object with static friction greater than an applied force?
 - G. At rest on a table?

2. At Equilibrium? Yes, No, or Maybe?
 - A. An object with multiple force acting on it?
 - B. A projectile at the top of its path (when $v_y = 0$)?
 - C. An object with no net force?
 - D. An object slowing down?
 - E. An object with friction?
 - F. An object speeding up?
 - G. An object at constant speed?

3. Find the weights for these objects: A. A 2 kg object: $F_w = \underline{\hspace{2cm}}$; B. A 30 N object: $F_w = \underline{\hspace{2cm}}$

4. What is the Normal Force on an object suspended by a rope?

5. A car is pointing downhill. The force of gravity is pulling it down the hill and the force of friction of its brakes is pulling it up the hill. If these two forces are equal,
 - A. Is the car at equilibrium?

 - B. Is the car accelerating?
 - C. Is the car moving?

6. What is the force of gravity on a 10 kg object?

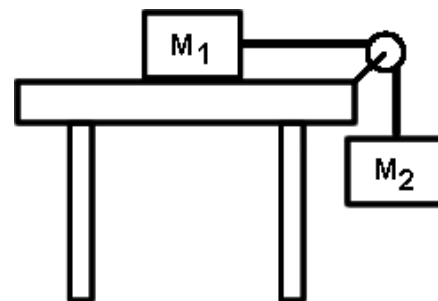
7. What is the force of gravity on a 1 kg object?

8. A 4 kg object moving 24 m/s slows to 4 m/s in 20 meters.
 - A. What kind of friction was this?
 - B. Find the force that caused the object to slow down.

- C. Find the coefficient of friction for this surface.

9. A 60 kg person is sliding down a rope at constant speed.
Find the force of friction of the rope acting on the person.

10. If $M_1 = 4$ kg and $M_2 = 8$ kg, find the acceleration of the system if $\mu_k = 0.2$.



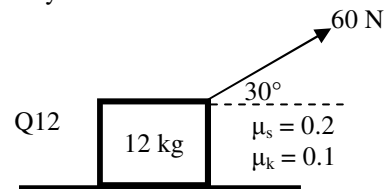
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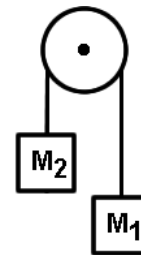
11. A 35 N force pulls on an object at 25° North of East. A second force pulls North with 20 N. A third force pulls East with 3 N.
A. Find the net force on the object.

B. What force would be necessary to keep the object at equilibrium?

12. Will the object move? If yes, find acceleration. If not, find what additional force is necessary to move it



13. If M_1 and M_2 are equal and I push M_2 down with an initial velocity of 2 m/s, what will M_2 's velocity after 3 seconds?



14. If $M_2 = 3\text{ kg}$ and $M_1 = 5\text{ kg}$, find the tension in the rope.

15. If I push on an object with 50 N of force with how much force does it push back on me?

16. If I push down on the earth with 300 N. How much does the earth push back on me?

17. A 70 N force pushes on three objects: 2 kg, 4 kg, and 6 kg.

- A. Which one will have the greatest acceleration?
B. Which one will push back with the greatest force?
C. Which one will have the least acceleration?

18. A box is in the back of a truck. If the truck accelerates quickly, what happens to the box?

19. When a car crashes, what would happen to the occupant of the car if they were not wearing a seatbelt?

20. Which of Newton's Laws applies?

- ____ A. How a rocket can fly in space.
____ B. Braking hard wears out your brakes faster.
____ C. When a car turns objects in the car keep going straight.

21. What do we call any force that keeps an object in a circle?

22. A 40 N force pushes on a 3.5 m^2 surface. What is the pressure on the surface?