

# Newton's 1<sup>st</sup> Law of Motion

## SPH4C

The \_\_\_\_\_ force is the \_\_\_\_\_ of all forces acting on an object.

Example: A weightlifter holds a weight above his head by exerting a force of 1.6 kN [up]. The force of gravity acting on the weight is 1.6 kN [down]. Draw a FBD of the weight. What is the net force on the weight?

If there is no net force acting on an object, the object will \_\_\_\_\_  
or will \_\_\_\_\_.

(Conversely, if an object is at rest or is moving at constant velocity, there is \_\_\_\_\_ net force acting upon it.)

This is the principle of \_\_\_\_\_, first articulated by \_\_\_\_\_.

Inertia is the property of matter that causes it to \_\_\_\_\_ to its motion.

The greater the \_\_\_\_\_ of an object, the greater its inertia.

Question: An object is being pushed along at constant velocity by a force of 5 N [left]. What is the force of friction acting on the object?



More Practice

1. Which object has the most inertia?
  - A. a feather
  - B. a textbook
  - C. Ms. Rosebery
  - D. an elephant
  
2. Fuzzy dice are hanging from the rear-view mirror of a car that is travelling forward at constant speed. The dice are:
  - A. angled toward the back of the car
  - B. angled toward the front of the car
  - C. hanging straight down
  - D. It cannot be determined.
  
3. Fuzzy dice are hanging from the rear-view mirror of a car that is travelling forward and speeding up. The dice are:
  - A. angled toward the back of the car
  - B. angled toward the front of the car
  - C. hanging straight down
  - D. It cannot be determined.
  
4. Fuzzy dice are hanging from the rear-view mirror of a car that is travelling forward and slowing down. The dice are:
  - A. angled toward the back of the car
  - B. angled toward the front of the car
  - C. hanging straight down
  - D. It cannot be determined.
  
5. A block of weight 4.0 N is suspended from the ceiling by a piece of string. What is the magnitude of the tension in the string?
  - A. 4.0 N
  - B. less than 4.0 N
  - C. greater than 4.0 N
  - D. Zero
  
6. A block of weight 4.0 N is being lifted at constant velocity by a piece of string. What is the magnitude of the tension in the string?
  - A. 4.0 N
  - B. less than 4.0 N
  - C. greater than 4.0 N
  - D. Zero