



Force and Newton's Laws

Part A. Vocabulary Review

Directions: Match the terms in Column II with the descriptions in Column I. Write the letter of the correct term in the blank at the left.

Column I

- _____ 1. An object at rest or moving at a constant speed in a straight path will continue to do so until a net force acts on it.
- _____ 2. An object acted upon by a net force will accelerate in the direction of the force according to the equation $acceleration = \frac{net\ force}{mass}$.
- _____ 3. the outward force from a surface
- _____ 4. a push or a pull
- _____ 5. The net forces on an object are not zero.
- _____ 6. the total force felt by an object
- _____ 7. Forces always act in equal but opposite pairs.
- _____ 8. two or more forces whose effects cancel each other
- _____ 9. the rubbing force that acts against motion between two touching surfaces

Column II

- a. Newton's first law of motion
- b. unbalanced forces
- c. balanced forces
- d. friction
- e. net force
- f. normal force
- g. Newton's third law of motion
- h. force
- i. Newton's second law of motion

Directions: Complete the following sentences using the terms listed below. Some terms may not be used.

accelerate

friction

velocity

static

sliding

slipping

wheel

strength

brake

inertia

terminal velocity

10. An object will _____ when the net force is not zero.
11. _____ will never speed up an object.
12. The friction that prevents an object from moving when a force is applied is _____ friction.
13. The friction that slows down an object that slides is _____ friction.
14. A(n) _____ helps reduce sliding friction.
15. Normal force is supplied by the _____ of the surface.

16. The speed an object reaches when the force of gravity is balanced by the force of air resistance is called _____.
17. Earth has so much _____ that it hardly accelerates when you push against the ground while walking.

Part B. Concept Review

Directions: Correctly complete each sentence by underlining the best of the three choices in parentheses.

1. (Static, Sliding, Rolling) friction keeps an object at rest.
2. A force can (push, pull, either push or pull).
3. The unbalanced force that stops almost everything is (gravity, friction, momentum).
4. An object will accelerate in the direction of the (net force, balanced forces, normal force).
5. A net force acting on an object changes the object's (mass, size, motion).
6. Newton's (third, second, first) law of motion describes the connection between an object supplying force and the object receiving the force.
7. A force in the opposite direction to the motion of the object will cause the object to (speed up, slow down, turn).
8. If an object is at rest, all forces acting on that object must be (unbalanced, balanced, normal).

Directions: Answer the following questions using complete sentences.

9. Explain why it is easy to miss an action-reaction pair. Give an example.

10. Why does friction never speed up an object?
