

 Chapter
Test

Force and Newton's Laws

I. Testing Concepts

Directions: For each of the following, write the letter of the term or phrase that best completes the sentence.

- _____ 1. A(n) _____ is a push or a pull.
a. newton
b. acceleration
c. force
d. momentum
- _____ 2. A _____ force is the total force felt by an object.
a. sum
b. net
c. strong
d. balanced
- _____ 3. In order to be _____ forces, their effects must cancel each other out and not cause a change in an object's motion.
a. balanced
b. strong
c. weak
d. normal
- _____ 4. If the forces acting on an object are unbalanced, the net force is **NOT** _____.
a. normal
b. strong
c. weak
d. zero
- _____ 5. Newton's first law of motion states that an object at rest or moving at a constant speed in a(n) _____ will continue to do so until a net force acts on it.
a. elliptical orbit
b. straight line
c. state of acceleration
d. curved path
- _____ 6. _____ is the rubbing force that acts against motion between two touching surfaces.
a. Acceleration
b. Normal force
c. Momentum
d. Friction
- _____ 7. _____ enables you to ride a bike without skidding and falling.
a. Static friction
b. Sliding friction
c. Rolling friction
d. Gravity
- _____ 8. Applying the brakes uses _____ to slow a vehicle down.
a. static friction
b. sliding friction
c. rolling friction
d. gravity
- _____ 9. In order to know how a force will affect an object, you must know the _____.
a. normalcy
b. weight
c. direction
d. gravity
- _____ 10. Newton's second law says that an object acted upon by a net force will accelerate in the direction of the force according to the equation _____.
a. $Ft = mv_2 - mv_1$
b. $a = \frac{F_{net}}{m}$
c. $m_1v_1 = m_2v_2$
d. $v = at$

Chapter Test (continued)**II. Understanding Concepts****Skill: Designing an Experiment**

Directions: Answer the following questions on the lines provided.

1. How could you use a roller skate, a sidewalk, and water to demonstrate how rolling friction works?

Skill: Predicting

2. A marble is lying in the middle of the floor. Use Newton's first law to describe what will happen to the marble.

3. A broom strikes the marble while you are sweeping. Use Newton's second law to describe what happens to the marble.

4. Use Newton's third law to describe what interaction there is between the marble and the broom.

III. Applying Concepts

Directions: Do the following calculation. Show your work in the space provided.

1. What force must be applied to a 10-kg object to make it accelerate at 6m/s^2 ?

Chapter Test (continued)**Writing Skills**

Directions: Answer the following questions using complete sentences.

2. Why is terminal velocity an example of balanced forces?

3. When you step out of a boat onto the dock, the boat moves. Why?

4. Describe circular motion. Which of Newton's laws helps you describe circular motion?

5. If action and reaction force pairs are equal and opposite, how can anything move? Give an example of equal and opposite force pairs.
