Name _____ Class_____Date_____

Assessment

Quiz

Section: Newton's First and Second Laws

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 1. Which statement illustrates Newton's first law?
a. A stone will not move unless something pushes or pulls it.
b. A ball rolling across the floor eventually slows down.
c. As a car comes to a stop, the passengers continue to move forward.
d. All of the above

_____ 2. Which object has the greatest inertia?
a. a tennis ball
b. a bowling ball
c. a beach ball
d. a volleyball

_____ 3. What force causes a skater sliding on the ice to gradually slow down?
a. a balanced force
b. inertia
c. friction
d. acceleration

_____ 4. A seat belt helps you when your car stops suddenly by providing a(n)
a. balanced forward force.
b. unbalanced forward force.
c. balanced backward force.
d. unbalanced backward force.

_____ 5. One newton is the force that can give a mass of 1 kg an acceleration of
a. 1 m/s. b. 9.8 m/s. c. 1 m/s^2. d. 9.8 m/s^2.

_____ 6. Which of the following will result in the greatest acceleration?
a. 56 N acting on a 1-kg box
b. 56 N acting on a 2-kg box
c. 23 N acting on a 2-kg box
d. 23 N acting on a 5-kg box

_____ 7. What unbalanced force is needed to give a 976 kg vehicle an acceleration of 2.50 m/s^2?
a. 3.90×10^2 N
b. 3.90×10^2 lb
c. 2.44×10^3 N
d. 2.44×10^3 lb

_____ 8. A force of 240.0 N causes an object to accelerate at 3.2 m/s^2. What is the mass of the object?
a. 0.013 kg b. 75 kg c. 240 kg d. 768 kg

_____ 9. A 0.25 kg steel ball experiences a net force of 1.15 N as it rolls down a ramp. What is the acceleration of the ball?
a. 0.29 m/s^2 b. 0.90 m/s^2 c. 1.4 m/s^2 d. 4.6 m/s^2

_____ 10. If an equal force is applied to two cars of equal mass, Car A and Car B, Car A will have _____ acceleration as (than) Car B.
a. the same b. greater c. less d. the opposite

Name _____ Class_____Date_____

Quiz

Section: Gravity

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 1. The gravitational force between two objects depends on masses of objects and
   a. accelerations of objects.
   b. distance between objects.
   c. speeds of objects.
   d. sizes of objects.

_____ 2. Which of the following objects exerts a gravitational force?
   a. a bowling ball
   b. a book
   c. a feather
   d. All of the above

_____ 3. Increasing which of these conditions results in more gravitational force between two objects?
   a. distance b. acceleration c. mass d. surface area

_____ 4. When an object is in free fall, the only force acting on it is
   a. gravity.
   b. friction.
   c. inertia.
   d. terminal velocity.

_____ 5. Free-fall acceleration near Earth's surface
   a. depends on an object's weight.
   b. is the same for all objects.
   c. depends on an object's mass.
   d. None of the above

_____ 6. How much does a 59.0 kg woman weigh on Earth?
   a. 6.02 N b. 59.0 lb c. 145 lb d. 578 N

_____ 7. Orbital motion is a combination of
   a. mass and friction.
   b. forward motion and free fall.
   c. acceleration and gravity.
   d. weight and vertical velocity.

_____ 8. Which statement about weight is *incorrect*?
   a. An object weighs more on the moon than it weighs on Earth.
   b. A change in an object's location can change the object's weight.
   c. An object's weight is directly proportional to its mass.
   d. The weight of an object depends on gravity.

_____ 9. Astronauts "float" when inside an orbiting spaceship because they are
   a. weightless.
   b. in a vacuum.
   c. in free fall.
   d. outside Earth's gravity.

_____ 10. Which is an example of projectile motion?
   a. a rolling bowling ball
   b. a dart thrown at a dart board
   c. a balloon rising in the air
   d. a high-speed train accelerating

Name _____ Class_____Date_____

Assessment

Quiz

Section: Newton's Third Law

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 1. Whenever a force is exerted, another force occurs that is _____ in size, and _____ in direction.
   a. equal, same
   b. smaller, same
   c. equal, opposite
   d. smaller, opposite

_____ 2. The force exerted on the racket by a hit tennis ball is the
   a. gravitational force.
   b. reaction force.
   c. acceleration.
   d. action force.

_____ 3. Which statement about action-reaction force pairs is *incorrect?*
   a. They act on the same object.
   b. They always occur in pairs.
   c. They occur at the same time.
   d. They are equal and opposite.

_____ 4. An object's momentum is determined by the object's
   a. weight and velocity.
   b. mass and acceleration.
   c. mass and velocity.
   d. weight and acceleration.

_____ 5. Two identical cars are traveling at equal speeds. One is going north and the other south. If they collide head-on and stick together, what will happen to the motion of the cars?
   a. Both cars will move north.
   b. Both cars will move east.
   c. Both cars will move south.
   d. Both cars will stop.

_____ 6. What is the momentum of a 255 g apple falling at 16.0 m/s?
   a. 4.08 m/s^2 downward
   b. 4.08 kg • m/s downward
   c. 15.9 m/s^2 downward
   d. 15.9 kg • m/s downward

_____ 7. Which of the following has a momentum of zero?
   a. a newspaper lying on a table
   b. a plane flying through the air
   c. a leaf falling to the ground
   d. All of the above

_____ 8. When a moving bowling ball hits a pin, some of the ball's momentum
   a. doubles in force.
   b. increases the pin's mass.
   c. is transferred to the pin.
   d. is lost.

_____ 9. Calculate the velocity of a 90.5 kg man running south with a momentum of 389 kg • m/s.
   a. 0.233 m/s south
   b. 4.30 m/s south
   c. 23.3 m/s south
   d. 35.2 m/s south

_____ 10. How does the total momentum of two objects before a collision compare with the total momentum after the collision?
   a. It is the same.
   b. It is less.
   c. It is equal to zero.
   d. It is greater.