

Directed Reading A

Section: Momentum

1. Why does it take a large truck longer to stop than a compact car, even though both are traveling at the same velocity?

MOMENTUM, MASS, AND VELOCITY

2. The product of the mass and velocity of an object is its

_____.

3. Why does a fast-moving car have more momentum than a slow-moving car of the same mass?

4. What is the equation used to calculate momentum?

Match the correct description with the correct term. Write the letter in the space provided.

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|---|-------------------|
| _____ 5. the mass of an object in kilograms | a. m |
| _____ 6. the velocity of an object in meters per second | b. v |
| _____ 7. units of momentum | c. $kg \cdot m/s$ |
| _____ 8. kilograms multiplied by meters per second | d. p |

9. What is the direction of momentum?

Directed Reading A *continued*

THE LAW OF CONSERVATION OF MOMENTUM

- _____ 10. If a cue ball hits a billiard ball so that the billiard ball starts moving and the cue ball stops, what happens to the cue ball's momentum?
- Some of the cue ball's momentum has transferred from the billiard ball.
 - All of the cue ball's momentum has transferred from the billiard ball.
 - All of the cue ball's momentum has transferred to the billiard ball.
 - Some of the cue ball's momentum has transferred to the billiard ball.
- _____ 11. The law that states that any time objects collide, the total amount of momentum is conserved, or stays the same, is called the
- law of conservation of momentum.
 - law of preservation of momentum.
 - law of preservation of velocity.
 - law of conservation of velocity.
- _____ 12. When two objects stick together, the mass of the combined objects is equal to the
- mass of the smaller object subtracted from the larger object.
 - product of the masses of the two objects.
 - masses of the two objects added together.
 - mass of the larger object divided by the smaller object.
- _____ 13. If momentum is conserved, what happens to velocity when mass changes?
- Velocity stays the same.
 - Velocity always increases.
 - Velocity always decreases.
 - Velocity changes.
- _____ 14. What usually happens to momentum when objects collide?
- Momentum of each object remains the same.
 - Momentum of each object increases.
 - Momentum of each object becomes equal.
 - Momentum transfers from one object to another.
- _____ 15. When objects collide, the total momentum of all objects
- remains the same.
 - increases.
 - decreases.
 - is divided in half.
16. How is the collision of a cue ball and a billiard ball an example of Newton's third law and the conservation of momentum?
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