Momentum Test Review

This is a preview of the published version of the quiz

Started: Feb 18 at 1:49pm

Quiz Instructions

Please indicate positive and negative when typing your answers.

Right is positive, left is negative.

Diagrams for #1-12:

Momentum and Impulse Review 2.pdf

Question 1 — 1 pts

1. m/s

Cart B travels at +3 m/s toward cart A which is initially at rest. The two collide in a perfectly inelastic collision. Cart B has mass 1 kg and cart A has mass 2 kg. What will the be speed of the two combined carts after the collision?

Question 2 — 1 pts

2. m/s

Cart B travels at +3 m/s toward cart A which is has initially velocity -2 m/s. Cart B has mass 1 kg and cart A has mass 2 kg. The two collide in an elastic collision. The final velocity of Cart B is -1 m/s. What will the velocity of cart A become after the collision?

Question 3

1 pts

3. m/s

On the right cart B has mass 2 kg and on the left cart A has mass 1 kg. Prior to release the two are connected by a compressed spring. After the spring is released, the final velocity of cart A is -5 m/s. What must be the final velocity of cart B?

Question 4

1 pts

4. m/s

A tennis ball applies an impulse of 30 Ns to a racket of mass 1.5 kg. What is the change of velocity of the racket?

Question 5

1 pts

5. Seconds

A 3 Newton force is applied to a cart for a period of 60 seconds. How long must a 9 N force be applied to produce the same change in momentum?

Question 6

1 pts

6. N*s or Kg*m/s

A 30 Newton force acts on a ball for 3 seconds. The ball has mass 2 kg. What is the ball's change in momentum?

Question 7

1 pts

7. a. Egg 'A' is dropped from a height of 5 meters and lands on concrete. Another identical egg 'B' is dropped from a height of 5 meters and lands on a soft mattress. Which egg experienced a greater change in momentum?

Choose the correct option.

- B
- neither, they were the same
- A

Question 8

1 pts

7. b. Egg 'A' is dropped from a height of 5 meters and lands on concrete. Another identical egg 'B' is dropped from a height of 5 meters and lands on a soft mattress. Which egg experienced a greater change in impulse?

Choose the correct option.

- B
- A
- neither, they were the same.

Question 9

1 pts

8. What happens to an object's momentum if its speed triples?

Choose the correct option.

- decrease by 1/3
- decrease by 1/2
- triple
- quadruple
- decrease by 1/4
- double

Question 10

1 pts

9. Newtons (magnitude)

A baseball traveling 40 m/s is caught and comes to rest in a player's glove over a time of .2 seconds. The mass of the ball is .13 kg. What was the average net force on the ball by the glove?

*The ball is caught and comes to stop in the player's hand.

Question 11

1 pts

10. Kg*m/s

What is the momentum of an object traveling at 10 m/s with mass 6 kg?

Question 12

1 pts

11.

Which units are acceptable for impulse?

Choose the correct option.

- m/s/s or Ns
- Kgm/s
- N/kg
- N or m/s/s
- N
- Ns
- Kgm/s or Ns

Question 13

1 pts

12.

Two cars with different masses are traveling the same speeds both in the positive direction. Car A has mass 1000 kg and is behind Car B which has mass 2000 kg. Which car requires more average net force to come to a stop if the stopping time remains the same for both cars?

- No answer text provided.
- B
- A
- the same average net force is required

Question 14

1 pts

What does the area of a force-time graph represent?

- impulse
- change in momentum
- impulse or change in momentum
- Joules or Work
- Joules
- Joules or Impulse
- Work

Question 15

1 pts

Impulse is equal to change in momentum.

- True
- False

Question 16

1 pts

An object that comes to a stop will experience the same change in momentum regardless of the time required for it to stop.

- True
- False

Question 17 1 pts

Doubling the time necessary for an object to come to a stop will reduce the average applied net force by 1/2.

- True
- False

Question 18 1 pts

The impulse required to bounce a ball off the wall is less than the impulse required to make it come to a complete stop.

- True
- False

Question 19 1 pts

Momentum is equal to mass multiplied by velocity.

- True
- False

Question 20

1 pts

Impulse is equal to force multiplied by distance.

- True
- False

Question 21

1 pts

Change in momentum cannot be negative.

- True
- False

Question 22

1 pts

Momentum is a vector.

- True
- False

Question 23

1 pts

Momentum can never be zero.

- True
- False

Question 24

1 pts

The total momentum of a system can never sum to zero.

- True
- False

Question 25

1 pts

Momentum of a system is conserved as long as no external forces at on any part of the system.

- True
- False

Question 26

1 pts

Kinetic energy of a system is conserved after a perfectly inelastic collision.

- True
- False

Question 27 — 1 pts

Total energy of a system is conserved after a perfectly inelastic collision.

- True
- False

Question 28 — 1 pts

Kinetic energy is not conserved after a perfectly elastic collision.

- True
- False

Question 29 — 1 pts

Total energy of a system is conserved after a perfectly elastic collision.

- True
- False

Question 30 — 1 pts

It is impossible for an exploding system to have zero momentum.

- True
- False

Question 31

1 pts

Internal forces do NOT affect the center of mass of a system.

- True
- False

Question 32

1 pts

An external net force on a system will NOT affect the center of mass of a system.

- True
- False

Not saved Submit Quiz