

# Quizizz

## Impulse & Momentum

Name : \_\_\_\_\_

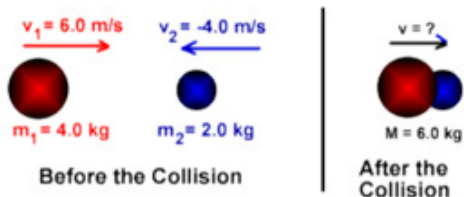
Class : \_\_\_\_\_

Date : \_\_\_\_\_

- In this type of collision, objects tend to "stick" together.  
 a) elastic  b) inelastic  
 c) They "stick" together in both types of collisions
- A 0.250 kg cart moving at 0.400 m/s has how much momentum?  
 a) 0.1 kg-m/s  b) 1 kg-m/s  
 c) 10 kg-m/s  d) 100 kg-m/s
- When the speed of an object is doubled, its momentum  
 a) remains unchanged in accord with the conservation of momentum.  b) doubles  
 c) quadruples  d) decreases
- A big fish swims upon and swallows a small fish at rest. After lunch, the big fish has less  
 a) momentum  b) velocity  
 c) mass
- An 1 kg object moving to the right at 2 m/s collides inelastically with a 1 kg object moving to the left at 2 m/s. The final velocity of both objects will be  
 a) 0 m/s  b) 1 m/s  
 c) 2 m/s  d) 4 m/s
- Which object listed below has the greatest momentum?  
 a) A 0.05 kg object rolling at 0.2 m/s.  b) A 0.15 kg object rolling at 2 m/s.  
 c) A 0.15 kg object rolling at 1 m/s  d) A 0.4 kg object rolling at 2 m/s.

7. Two football players with mass 75 kg and 100 kg run directly toward each other with speeds of 6 m/s and 8 m/s respectively. If they grab each other as they collide, the combined speed of the two players just after the collision would be:
- a) 2 m/s  b) 3.4 m/s
- c) 4.6 m/s  d) 7.1 m/s
8. A 2 kg cart has a momentum of 16 kg m/s. What is its velocity?
- a) 8 m/s  b) 32 m/s
- c) 0.125 m/s  d) 18 m/s
9. The law of conservation of momentum states that,
- a) p before is less than p after  b) p before is the same as p after
- c) p before is more than p after
10. The units for Impulse are
- a) N/s  b) N\*s
- c) N  d) m/s
11. Momentum is conserved in this type of interaction
- a) elastic  b) inelastic
- c) momentum is conserved in all of these interactions  d) explosive
12. A bug flies into the windshield of a car going the opposite way. Which of the following are true.
- a) the force of impact is the same for both  b) the impulse is the same for both
- c) the acceleration of the bug is larger than the truck  d) A, B, and C are all true
13. Momentum is a \_\_\_\_\_ quantity
- a) scalar  b) scalar (non-directional)
- c) vector (directional)  d) energy

14. A 10kg toy truck moves at 5m/s East. It collides head-on with a 5kg toy car moving 10 m/s moving west. What is the total momentum of the system?
- a) 0 kgm/s  b) 30 kgm/s
- c) 50 kgm/s  d) 10 kgm/s
15. T/F: A big truck will **always** have more momentum than a small car.
- a) True  b) False
16. The reason airbags make car collisions safer is because they:
- a) decrease time of impact.  b) increase force of impact.
- c) increase the time of impact.  d) decrease the impulse during impact.
17. In a physics experiment, two carts of mass 1.5 kg each are rolled towards each other. The orange cart has a velocity of 2 m/s and the blue cart has a velocity of -1m/s. The carts stick together when they collide. Calculate their final speed.
- a) 0.5 m/s  b) 1.0 m/s
- c) 0.33 m/s  d) 0.67 m/s
18. What is the the total momentum of the red and blue ball before the collision?



- a) 16 kg m/s  b) 32 kg m/s
- c) 2 kg m/s  d) 6 kg m/s
19. The momentum of an object depends upon the object's \_\_\_\_\_ & \_\_\_\_\_.
- a) size and shape  b) mass and speed
- c) mass and velocity  d) mass and energy
20. A 5 N force is applied to a 3 kg ball to change its velocity from +9 m/s to +3 m/s. The impulse on the ball is \_\_\_\_\_ N s.
- a) -2.5  b) -10
- c) -18  d) -45

21. A(n) \_\_\_\_\_ causes and is equal to a change in momentum

a) impulse

b) force

c) joule

d) watt

22. An egg is thrown at a wall and at a bed sheet. The force of impact will be

a) Greater against the wall

b) Greater against the sheet

c) Force is equal

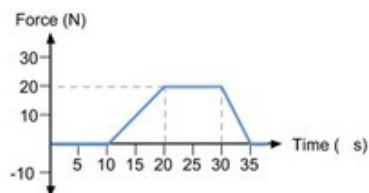
23. An egg is thrown at a wall and at a bed sheet. The egg's change in velocity will be

a) Greater for the wall collision

b) Greater for the sheet collision

c) Change in velocity is equal

24. What is the impulse shown on this graph?



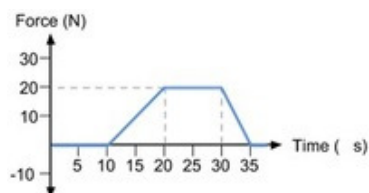
a) 700 N\*s

b) 200 N\*s

c) 350 N\*s

d) 300 N\*s

25. What is the change in momentum shown on this graph?



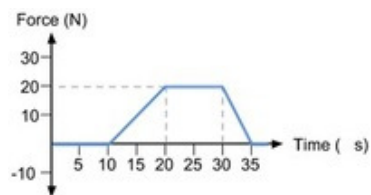
a) 700 kg\*m/s

b) 200 kg\*m/s

c) 350kg\*m/s

d) 300 kg\*m/s

26. If this graph represents a 35kg roller coaster cart being launched up the tracks, how fast will it be going when launched?



a) 70 m/s

b) 20 m/s

c) 10m/s

d) 30 m/s

## Answer Key

1. b
2. a
3. b
4. b
5. a
6. d
7. a
8. a
9. b
10. b
11. c
12. d
13. c
14. a
15. b
16. c
17. a
18. a
19. c
20. c
21. a
22. a
23. c
24. c
25. c
26. c