Momentum and Collisions

Phys Sci

Name_____ Class_____ Date_____

1 A **2.0-kilogram** cart moving due east at 6.0 meters per second **collides** with a **3.0-kilogram** cart moving due west. The carts stick together and come to rest after the collision. What was the **initial speed** of the **3.0-kilogram cart**?

A 1.0 m/s
B 6.0 m/s
C 9.0 m/s
D 4.0 m/s

2 What is the **momentum** of a 1,200-kilogram car traveling at 15 meters per second due east?

A 80 kg•m/s due east
B 80 kg•m/s due west
C 1.8×10^4 kg•m/s due east
D 1.8×10^4 kg•m/s due west

3 Two cars having different weights are traveling on a level surface at different constant velocities. Within the same time interval, **greater force** will always be

4 A 0.050-kilogram bullet is fired from a 4.0- kilogram rifle that is initially at rest. If the bullet leaves the rifle with momentum having a magnitude of 20 kilogram•meters

5

7 If the **velocity** of the object is **doubled**, the magnitude of the momentum of the object will be

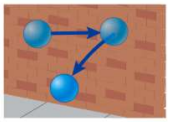
A 32.0 kg•m/s
B 64.0 kg•m/s
C 128 kg•m/s
D 256 kg•m/s

Compared to the magnitude of the force of the **truck on the mosquito** during the collision, the magnitude of the force of the **mosquito on the truck** is

A smaller
B larger
C the same

9 A 1.0-kilogram rubber ball traveling east at **4.0 meters per second** hits a wall and **bounces back** toward the west at **2.0 meters per second**. Compared to the kinetic energy of the ball before it hits the wall, the kinetic energy of the ball **after** it bounces off the wall is

A one-fourth as great
B one-half as great
C the same
D four times as great



10 As a spring is stretched, its **elastic potential energy**

A decreases
B increases
C remains the same

Momentum and Collisions

Phys Sci

Name_____ Class_____ Date_____

1 A **2.0-kilogram** cart moving due east at 6.0 meters per second **collides** with a **3.0-kilogram** cart moving due west. The carts stick together and come to rest after the collision. What was the **initial speed** of the **3.0-kilogram cart**?

A 1.0 m/s **C** 9.0 m/s
B 6.0 m/s **D** 4.0 m/s

D

2 What is the **momentum** of a 1,200-kilogram car traveling at 15 meters per second due east?

A 80 kg•m/s due east
B 80 kg•m/s due west
C 1.8×10^4 kg•m/s due east
D 1.8×10^4 kg•m/s due west

C

3 Two cars having different weights are traveling on a level surface at different constant velocities. Within the same time interval, **greater force** will always be

4 A 0.050-kilogram bullet is fired from a 4.0- kilogram rifle that is initially at rest. If the bullet leaves the rifle with momentum having a magnitude of 20 kilogram•meters

C

5

A

7 If the **velocity** of the object is **doubled**, the magnitude of the momentum of the object will be

A 32.0 kg•m/s
B 64.0 kg•m/s
C 128 kg•m/s
D 256 kg•m/s

C

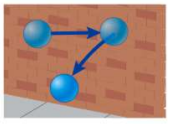
Compared to the magnitude of the force of the **truck on the mosquito** during the collision, the magnitude of the force of the **mosquito on the truck** is

A smaller
B larger
C the same

C

9 A 1.0-kilogram rubber ball traveling east at **4.0 meters per second** hits a wall and **bounces back** toward the west at **2.0 meters per second**. Compared to the kinetic energy of the ball before it hits the wall, the kinetic energy of the ball **after** it bounces off the wall is

A one-fourth as great
B one-half as great
C the same
D four times as great



A

10 As a spring is stretched, its **elastic potential energy**

A decreases
B increases
C remains the same

B