

Name: _____ Date: _____ Period: _____

Conservation of Momentum Worksheet

1. A spring is compressed between two carts, one with a mass of 5 kg and one with a mass of 10 kg. Which will move away with a higher velocity?

2. If a 100 N weight sits on a scale in an express elevator, what will happen to the weight shown on the scale when the elevator accelerates upward?
 - a. Reference #2, what will the weight be when the elevator is traveling a constant speed?

 - b. Reference # 2, what will the weight be when the elevator is slowing to a stop?

3. Joe the fisherman attempts to leap from his small fishing boat to the dock his boat is next to, but ends up in the water between his boat and the dock, why?

4. What is the momentum of a 10 kg mass moving at 5 m/s?

5. What is the momentum of a 2 kg mass moving at 25 m/s?

6. Which has more momentum, a 3 kg mass at 9 m/s or a 5 kg mass at 5 m/s?

7. Which has more momentum, a 2 kg mass at 40 m/s or a 75 kg mass at 1 m/s?

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8. Which has more momentum, a 4 kg mass at 15 m/s or an 8 kg mass at 8 m/s?

9. In a collision, a 5 kg mass moving at 2 m/s transfers all of its momentum to a 1 kg mass. What is the velocity of the 1 kg mass after the collision?

10. In a collision, a 2 kg mass moving at 50 m/s transfers all of its momentum to a 25 kg mass. What is the velocity of the 25 kg mass after the collision?

11. In a collision, a 25 kg mass moving at 3 m/s transfers all of its momentum to a 5 kg mass. What is the velocity of the 5 kg mass after the collision?

12. An 8 kg mass moving at 8 m/s collides with a stationary 5 kg mass. After the collision, both the 8 and the 5 kg mass move off in the same direction. If the 8 kg mass is moving at 3 m/s, what is the speed of the 5 kg mass?

13. A 5 kg mass moving at 15 m/s collides with a stationary 2 kg mass. After the collision, both the 5 and the 2 kg mass move off in the same direction. If the 2 kg mass is moving at 25 m/s, what is the speed of the 5 kg mass?

14. An 8 kg mass moving at 8 m/s collides with a 6 kg mass moving in the same direction at 6 m/s. After the collision, both the 8 and the 6 kg mass continue to move in the same direction. If the 8 kg mass is moving at 5 m/s, what is the speed of the 6 kg mass?

15. What law governs # 14?