

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

# Worksheet: Momentum Word Problems

## CHAPTER 8: Momentum

Directions: Answer the following questions concerning the conservation of momentum using the equations below. Show all of your work to receive credit.

$$p = mv$$

$$Ft = \Delta(mv)$$

$$\text{impulse} = F\Delta t$$

1. A net force of **100 Newton's** is applied to a wagon for **5 seconds**. This causes the wagon to undergo a change in **momentum** of
  
  
  
  
  
  
  
  
  
  
2. A net force of **200 Newton's** is applied to a wagon for **3 seconds**. This causes the wagon to undergo a change in **momentum** of
  
  
  
  
  
  
  
  
  
  
3. A **2.0-kg** ball has a momentum of **25 kg·m/s**. What is the ball's **speed**?
  
  
  
  
  
  
  
  
  
  
4. A **1.0-kg** ball has a momentum of **12 kg·m/s**. What is the ball's **speed**?
  
  
  
  
  
  
  
  
  
  
5. A **1.5-kg** ball is thrown at **10 m/s**. What is the ball's **momentum**?
  
  
  
  
  
  
  
  
  
  
6. A ball is moving at **7.0 m/s** and has a momentum of **100 kg·m/s**. What is the ball's **mass**?

7. A ball is moving at **4.5 m/s** and has a momentum of **75 kg·m/s**. What is the ball's **mass**?
8. Your brother's mass is **40.0 kg**, and he has a **1.30 kg** skateboard. What is the combined **momentum** of your brother and his skateboard if they are going **8.50 m/s**?
9. Your brother's mass is **55.0 kg**, and he has a **2.0 kg** skateboard. What is the combined **momentum** of your brother and his skateboard if they are going **8.50 m/s**?
10. A hockey player makes a slap shot, exerting a constant force of **25.0 N** on the puck for **0.16 seconds**. What is the **magnitude** of the **impulse** given to the puck?
11. A hockey player makes a slap shot, exerting a constant force of **40.0 N** on the puck for **0.20 seconds**. What is the **magnitude** of the **impulse** given to the puck?
12. A constant force of **5.00 N** acts on a **2.50 kg** object for **10.0 s**. What are the changes in the object's **momentum** and **velocity**?
13. A constant force of **20 N** acts on a **10.0 kg** object for **5.0 s**. What are the changes in the object's **momentum** and **velocity**?