Worksheet: Momentum Word Problems
CHAPTER 8: Momentum

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

$$p = mv \qquad Ft = \Delta(mv) \qquad impulse = F\Delta t$$

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 as 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 as 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**. With 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**. With 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*?