**Newton's First and Second Laws Homework**

**Concepts: Forces Acting on Masses and Newton’s First and Second Laws**

1. **Write a paragraph of at least 25 words using Newton’s first law to help you explain why a seatbelt can help save your life if you get into a car accident.**
2. **Draw an arrow (vector) to show the direction of the velocity of the object in motion in the following images. The first example has been done for you.**



***Example*:**

**A satellite orbiting Earth.**



**A biker going down a mountain. A soccer player kicking a soccer ball.**



1. **A boy lets go of a feather. The feather is acted upon directly downward by the force of gravity with 5 Newtons and by the force of air resistance in the opposite direction (upwards) with 2 Newtons. The net force on the feather is \_\_\_\_.**
2. **3 Newtons upward**
3. **8 Newtons downward**
4. **3 Newtons downward**
5. **8 Newtons upward**



**2 Newtons**

**5 Newtons**

1. **A satellite in deep space is on a mission to Neptune. It fires its engines to change its velocity toward Neptune at a speed of 200 kilometers per hour. Suddenly, the engines stop working. After a few minutes, what is the velocity of the satellite?**
2. **100 kilometers per hour, towards Neptune**
3. **200 kilometers per hour, towards Earth**
4. **100 kilometers per hour, towards Earth**
5. **200 kilometers per hour, towards Neptune**