Wkst – Intro Momentum and Impulse
AP Physics – Unit 4

1. A 0.40 kg soccer ball approaches a player horizontally with a velocity of 18 m/s to the north. The player strikes the ball and causes it to move in the opposite direction with a velocity of 22 m/s. What is the impulse was delivered to the ball by the player?

2. A 0.50 kg object is at rest. A 3.00 N force to the right acts on the object during a time interval of 1.50 s.
   a. What is the velocity of the object at the end of this interval?
   b. At the end of this interval, a constant force of 4.00 N to the left is applied for 3.00 s. What is the velocity at the end of this 3.00 s ?

3. A 2500 kg car traveling to the North is slowed down by uniformly from an initial velocity of 20.0 m/s by a 6250 N braking force acting opposite the car's motion. Use the impulse-momentum theory to answer the following questions.
   a. What is the car's velocity after 2.50 s?
   b. How far does the car move during 2.50 s?
   c. How long does it take the car to come a complete stop?