

## Momentum Practice Quiz

1. A heroic Foothill Senior (HFS) with a mass of 50 kg runs a 6 m/s to save a child standing in the path of a lowly Amador Senior's (LOAS) runaway car. What is the velocity of the HFS and child after she saves the child if the child weighs 20 kg?
2. Steven Jackson (#39) carries the ball towards the goal line. Some 49er (doesn't matter who, let's call him #98 because he will probably miss anyway) meets him at the goal line moving in the opposite direction. What is their combined velocity after "98" grabs "39"? Is it a touchdown? Jackson has a mass of 200 lbs, velocity = 8 m/s. #98's mass is 250 lbs. And his velocity = 3 m/s.
3. Use  $F$ ,  $\Delta t$ ,  $m$ ,  $\Delta v$ , impulse, and momentum change in a sentence about pads on an amusement park ride.
4. Ben Dover throws a Big Mac at another student, Doofus McGee. It hits Doofus' hat, which, together, fly off his head, and collides with the face of a third student, one Emily Moredork. If the Big Mac had a mass of 0.25 kg and a velocity of 6 m/s, with what speed was Emily hit if the hat has a mass of 0.20 kg?

5. An Oakland Raider quarterback throws a pass with a force of 1000 N. The ball has 300 kg \* m/s of impulse. The game clock says 1 second when his arm starts forward. Does he have enough time to get the ball off or do the Raiders lose yet again? (It would probably be intercepted anyway!!!)
  
6. Two cars collide head on in an intersection. The two ton truck bounces back with a velocity of 0.3 m/s while the one ton auto rebounds in the opposite direction. What is the velocity of the car after the accident.
  
7. An American speed skater with a mass of 56 kg travels at 21 m/s. She hits a stationary Eastern European skater that has a mass of 130 kg. The American, Buffy, immediately stops and Helga moves in the same direction that Buffy was traveling. At what velocity does Helga move away from Buffy after the point of impact?

