Module 07 - Lesson 6
Collisions and Explosions

Question 1: A 140 g bullet moving at 300 m/s strikes a 5-kg wooden block. Determine the velocity of the wooden block after the bullet comes to a stop inside the block embedded in it.

Question 2: A 70-kg skateboarder carries a 20-kg backpack as he rolls with a speed of 9 m/s. In order to come to a full stop, how fast must he toss his backpack forward relative to the ground?

Problem: A car and a truck collide at an intersection. The car has a mass of 1200 kg and is heading East, while the truck has a mass of 3000 kg and is heading South at 15 m/s. After the collision the two vehicles stick together moving at an angle of 50° South of East from the point of impact. (a) How fast do the vehicles move right after the collision? (b) What was the speed of the car right before the collision?