

Bullet Strikes Wooden Block. A 5.20 g bullet moving at 672 m/s strikes a 700. g wooden block at rest on a frictionless surface. The bullet emerges, traveling in the same direction with its speed reduced to 428 m/s. What is the resulting speed of the block?

Billiard Ball. A billiard ball moving at a speed of 2.2 m/s strikes an identical stationary ball with a glancing blow. After the collision, one ball is found to be moving with a speed of 1.1 m/s in a direction making a $60.^\circ$ angle with the original line of motion. Find the velocity of the other ball.

Ice-Skating Man. A 60 kg man is ice skating due north with a velocity of 6.0 m/s when he collides with a 35 kg child. The man and the child stay together and have a velocity of 3.0 m/s at an angle of 35° north of east immediately after the collision. What are the magnitude and direction of the velocity of the child just before the collision?