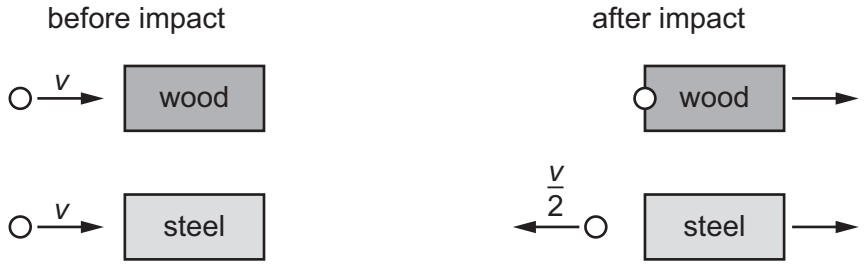
10 Two blocks are at rest on a frictionless horizontal surface. One block is made of wood and the other block is made of steel.

A steel ball is fired horizontally with a speed v at the wooden block. The ball embeds itself in the block, and the ball and block move together after impact.

A second identical steel ball is fired horizontally with speed v at the steel block. The steel ball then rebounds back along its original path with speed $\frac{v}{2}$.



The wooden block and the steel block have equal mass.

Which statement about the blocks immediately after the collisions is correct?

A Both blocks must travel with the same speed.

B The steel block must travel faster than the wooden block.

C The wooden block must travel faster than the steel block.

D The masses of the blocks and the steel ball are needed to determine which block travels faster.