

- 18** A steel sphere is dropped vertically onto a horizontal metal plate. The sphere hits the plate with speed  $u$ , leaves it at speed  $v$ , and rebounds vertically to half of its original height. Ignore air resistance.

Which expression gives the value of  $\frac{v}{u}$ ?

**A**  $\frac{1}{2^2}$

**B**  $\frac{1}{2}$

**C**  $\frac{1}{\sqrt{2}}$

**D**  $1 - \frac{1}{\sqrt{2}}$