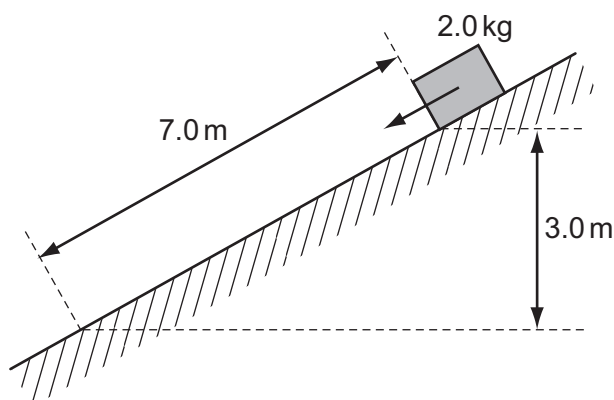


- 14 A steel sphere is dropped vertically onto a horizontal metal plate. The sphere hits the plate with a speed u , leaves it at a speed v , and rebounds vertically to half of its original height.

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

- A $\frac{1}{2^2}$ B $\frac{1}{2}$ C $\frac{1}{\sqrt{2}}$ D $1 - \frac{1}{\sqrt{2}}$

- 15 A block of mass 2.0 kg is released from rest on a slope. It travels 7.0 m down the slope and falls a vertical distance of 3.0 m. The block experiences a frictional force parallel to the slope of 5.0 N.



What is the speed of the block after falling this distance?

- A 4.9 ms^{-1} B 6.6 ms^{-1} C 8.6 ms^{-1} D 10.1 ms^{-1}

- 16 A body travelling with a speed of 10 ms^{-1} has kinetic energy 1500 J.

If the speed of the body is increased to 40 ms^{-1} , what is its new kinetic energy?

- A 4500 J B 6000 J C 24 000 J D 1 350 000 J

Space for working