Home Assignment

Q A stone of mass 1 kg is raised through 1 m height

The gain of gravitational potential energy is 9.8 Joule.

m = 1 kg

h = 1 m

$g = 9.8 \ m/s^2$

$PE = mgh = 1 \times 9.8 \times 1 = 9.8 \ J$

Q A ball is dropped from a height of 10m. If energy of the ball reduces by 40° after striking the ground, how high can the ball bounce back? $(10 m/s^2)$

$GPE = mgh$

If the energy of the ball reduces by 40% after striking the ground, then remaining energy of the ball will be 60% of initial energy.

Let initial energy of the body of mass (m) of height (h) is (mgh)

So, mgh = 60% of mgh

$h = 60\% \times h = \dfrac{60}{100} \times 10 = 6 \ m$

Cw/

3. Two masses m & $9m$ are moving with equal kinetic energies. The ratio of the magnitudes of their momenta is.

$$3 : 1$$

Let the velocity of mass of $1g$ be x
And let the velocity of mass $9g$ be y

According to question $\dfrac{x^2}{2} = \dfrac{9y^2}{2}$ which gives

$x = 2y$

Then ratio of momentum $= \dfrac{x}{9y} = \dfrac{1}{3}$

④ Potential energy is minimum when it is lying on the ground

⑤ The work done against gravity in moving the block a distances up the slope is

mgh

⑥ If the K.E of a body increased by 300% & its momentum will increase by
100%

⑦

7. Consider these two statements

1) Linear momentum of a system of particle is zero

2) Kinetic energy of a system of particle is zero.

Then

A doesn't imply B but B implies A