Kinetic Energy (Word Problem)

Table of Contents

In the last segment, we learnt about **kinetic energy.** In this segment we are going to solve a numerical based on kinetic energy.

Numerical - Kinetic Energy

Calculate the work required to be done to increase the velocity of an object from 20 km/hr to 40 km/hr, if the mass of the object is 40 kg.

We know that the S.I. unit of velocity is **m/s**, hence we need to convert the given velocities into m/s.

Initial Velocity,

$$u = 20 \times (\frac{1000}{60 \times 60})$$

u = 5.55 m/s

Final Velocity,

$$v = 40 \times (\frac{1000}{60 \times 60})$$

v = 11.1 m/s

Initial Kinetic Energy

K.E. (initial) $= \frac{mu^2}{2}$

K.E. (initial) = 616 Joules

Final Kinetic Energy

K.E. (final) = $\frac{mv^2}{2}$

K.E. (final) = 2469 Joules

Work Done = Final Kinetic Energy – Initial kinetic energy
Work Done = 1853 joule

Summary

Kinetic Energy	• The kinetic energy (KE) of an object is the energy that it possesses due to its motion **K.E. =** $\frac{mv^2}{2}$

What's next?

In our next Class 9 Science segment, we shall learn about the **potential energy** with the help of a few examples.