Brainbox learn easy

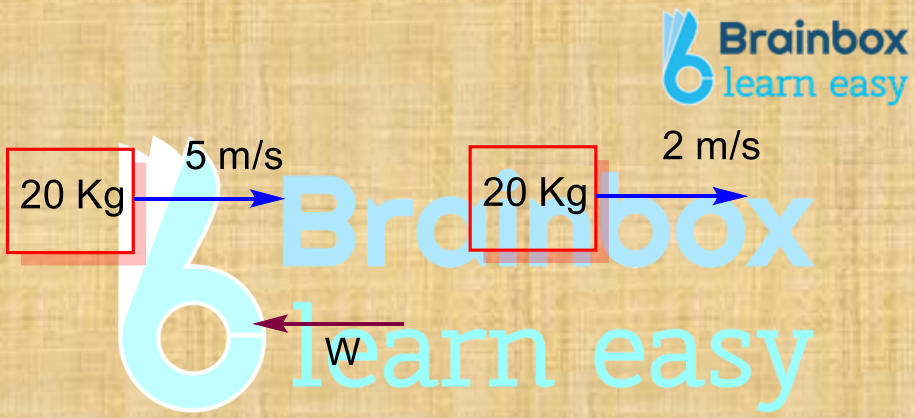
# Chapter 11

# Work and Energy

**Problem 1:**

Certain force acting on 20 Kg mass changes its velocity from 5 m/s to 2m/s. Calculate the work done by force.

**Sol**.




From work – energy theorem,

$$W = \frac{1}{2}mv^2 - \frac{1}{2}mu^2$$

$$W = \frac{1}{2} \times 20 \times 2^2 - \frac{1}{2} \times 20 \times 5^2$$

$$= 40 - 250 = \mathbf{-210\ J}$$

Here work done is Negative.

## Problem 2:

A force of 8N is applied on a body of mass 2Kg at rest for 10 sec. What is its KE?

**Sol.**

Given F = 8N

m = 2 Kg

$\therefore \quad a = \frac{F}{m} = \frac{8}{2} = 4 \text{ m/s}^2$

Using v = u + at,

V = 0 + 4 x 10

$\therefore$ v = 40 m/s

Now, KE = $\frac{1}{2}mv^2$

$= \frac{1}{2} \times 2 \times 40^2$

= 1600 J

= **1.6 KJ**