Work, Factors affecting the amount of work done, Units of work

CLASS-IX

SUBJECT : PHYSICS
CHAPTER NUMBER: 11
CHAPTER NAME : WORK AND ENERGY

Home Assignment

1. The figure shows four situations in which a force acts on a box while the box either slides to the right with a displacement $\Delta \vec{x}$ or doesn't budge as indicated. The force on each box is shown. Rank the situations according to the amount of the work done by the force on the box during its displacement from greatest to least.
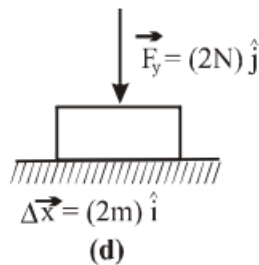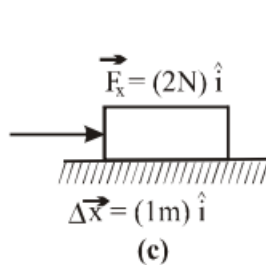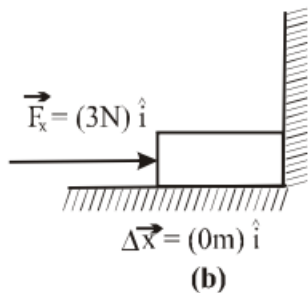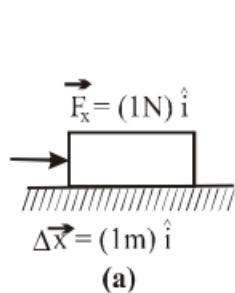
2. A body of mass 1 kg has kinetic energy 1J when its speed is –
   (1) 0.45 m/s
   (2) 1 m/s
   (3) 1.4 m/s
   (4) 4.4 m/s

3. The kinetic energy of a body will become eight times if –
   (1) its mass is made four times
   (2) its velocity is made four times
   (3) both the mass and velocity are doubled
   (4) both the mass and velocity are made four times

Home Assignment

4. A uniform force of 4N acts on a body of mass 8 kg for a distance of 2.0m. The K.E. acquired by the body is

   (1) 8J
   (2) 64 J
   (3) (1/1) × 4J
   (4) 16 gJ

5. The kinetic energy of a body becomes twice its initial value. The new momentum of the body will be –

   (1) 2 times
   (2) $\sqrt{2}$ times
   (3) 4 times
   (4) unchanged

6. The kinetic energy acquired by a body of mass 'm' after travelling a fixed distance from rest under the action of a constant force is –

   (1) directly proportional to mass m
   (2) inversely proportional to mass m
   (3) inversely proportional to mass $m^{1/2}$
   (4) independent of mass m

7. A car weighing 500 kg. working against a resistance of 500N, accelerates from rest to 20 m/s in 100m. $(g = 10m/s^2)$. The work done by the engine of car is –

   (1) 1.0×10^5 J
   (2) 1.5×10^5 J
   (3) 1.05×10^5 J
   (4) The information given is insufficient

THANKING YOU
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