Friction

Date: 11/08/2022
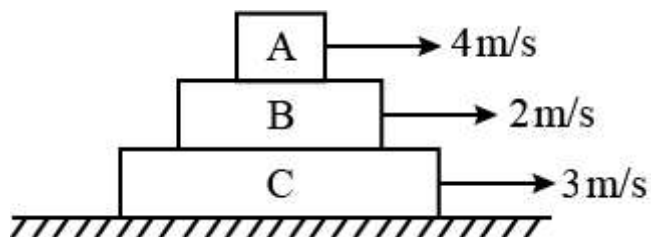
Subject: Physics

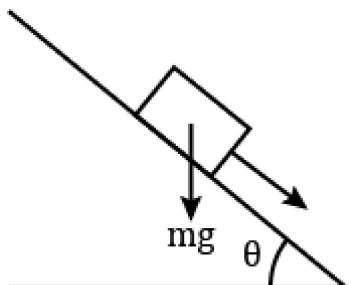Topic : Friction

Class: Standard XI

Time: 00:20 hrs

1. In the figure shown, find the direction of friction on blocks B and C at the surface which is common to the blocks B and C respectively.
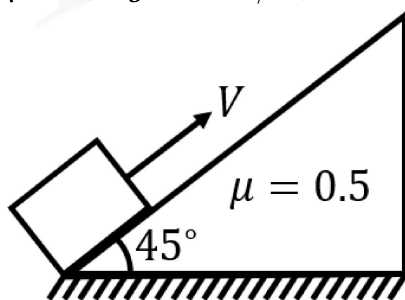

   A. Forward, Backward

   B. Backward, Backward

   C. Backward, Forward

   D. Forward, Forward

2. A body of mass $2\,\text{kg}$ is kept on a rough horizontal surface. It is subjected to a force of a) $5\,\text{N}$ b) $20\,\text{N}$.
   Given $\mu_s = 0.5$ and $\mu_k = 0.4$. Taking $g = 10\,\text{m/s}^2$, find the acceleration in each case.

   A. zero, zero

   B. zero, $5\,\text{m/s}^2$

   C. zero, $6\,\text{m/s}^2$

   D. $4\,\text{m/s}^2$, $6\,\text{m/s}^2$,

3. A plank with a box on it at one end is gradually raised about the other end. As the angle of inclination with the horizontal reaches $30°$, the box starts to slip and slides 4.0 m down the plank in 4.0 s. The coeffficient of static and kinetic friction between the box and the plank will respectively be
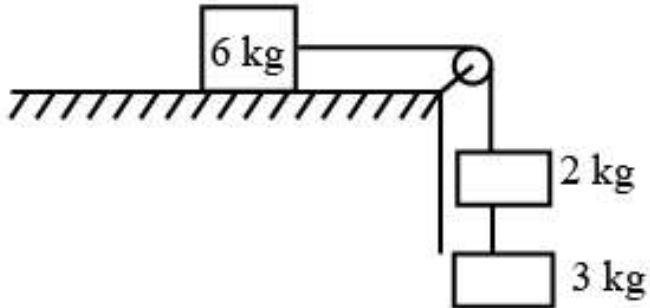

   A. 0.4 and 0.3

   B. 0.6 and 0.6

   C. 0.6 and 0.5

   D. 0.5 and 0.6

4. A block of mass $1 \text{ } kg$ is projected from the lowest point up along the inclined plane, if $g = 10 \text{ } m/s^2$, the retardation experienced by the block is

   A. $\dfrac{15}{\sqrt{2}} m/s^2$

   B. $\dfrac{5}{\sqrt{2}} m/s^2$

   C. $\dfrac{10}{\sqrt{2}} m/s^2$

   D. zero

5.

Find the minimum value of coefficient of friction between the $6\ kg$ block and the surface if the system shown does not accelerate.

A. $\mu = \dfrac{5}{6}$

B. $\mu = \dfrac{2}{3}$

C. $\mu = \dfrac{1}{2}$

D. $\mu = \dfrac{3}{4}$