

① A ball of mass  $0.5 \text{ kg}$  hits a vertical fixed wall at right angles with speed  $4.5 \text{ ms}^{-1}$ .  
The ball rebounds with speed  $3 \text{ ms}^{-1}$ . Find the magnitude of the impulse exerted by the ball on the wall.

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② A particle of mass  $5 \text{ kg}$ , initially at rest on a smooth horizontal plane is acted upon by a force with magnitude  $7.5 \text{ N}$  for  $9 \text{ s}$ .  
Find: (a) the magnitude of the impulse given to the particle by the force.  
(b) the final speed of the particle.

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