



1. With the velocity provided determine the vertical component of the Alpha particle's velocity.
 Vertical component = $(1.5 \times 10^7 \text{ m/s}) (\sin(40)) = 9.6 \times 10^6 \text{ m/s}$

6. In an elastic collision energy and momentum are conserved. What is the total momentum in the X direction for the system of alpha particle and surface atom after the collision? What is the total momentum in the Y direction for the system of alpha particle and surface atom after the collision? What is the total energy of the system of alpha particle and surface atom after the collision?

The particles in this field are still in air? Is so, still will form energy
 System energy consists of only the alpha particles kinetic energy, so total energy is equal to the alpha particles energy = $1.3 \times 10^{-12} \text{ J}$ of kinetic energy

5. What is the energy of the system of alpha particle and surface atom?
 No y component, 0 momentum in the y direction
 Defining Unit's system

4. Using the velocity and mass you calculated in the first section, calculate the kinetic energy of the alpha particle.
 ? after the collision?