Answer on Question 39102, Physics, Mechanics Elastically colliding means we can use both energy and momentum conservation law here. Speed of sphere before colliding is $v_s = \sqrt{2gh}$ and its energy is $m_s g h_s = \frac{m_s v_s^2}{2}$. From conservation laws

$$\frac{m_s v_s^2}{2} = \frac{m_1 v_1^2}{2} + \frac{m_2 v_2^2}{2}$$

$$m_s v_s = m_1 v_1 + m_2 v_2$$

one can easily find velocity of block after collision

$$v_2 = \frac{v_s}{m_2/m_1 + 1}$$

From this we can find how high will the block get

$$h_2 = \frac{v_2^2}{2g}$$

Knowing the height, we will find how far does the block slide

$$l = \frac{h_2}{\sin 30°}$$

Gathering everything together

$$l = \frac{\frac{v_2^2}{2g}}{\sin 30°} = \frac{\left(\frac{v_s}{m_2/m_1+1}\right)^2}{2g \sin 30°} = \frac{\left(\frac{\sqrt{2gh}}{m_2/m_1+1}\right)^2}{2g \sin 30°} \approx 0.069\,m = 6.9\,cm$$