

(*) : Time of flight, $T = \frac{2u \sin \theta}{g} = \frac{2 \times 60 \times 1/2}{10} = 6 \text{ sec.}$

So, particle goes to maximum height at, $t = 3 \text{ sec.}$

According to given situations,

$$h_0 = u \sin \theta t - \frac{1}{2}gt^2,$$

$$(h_0)_{t=1 \text{ sec}} = 60 \times \frac{1}{2} \times 1 - \frac{1}{2} \times 10 \times 1^2 = 25 \text{ m.}$$

$$(h_2)_{t=2 \text{ sec}} = 60 \times 2 \times \frac{1}{2} - \frac{1}{2} \times 10 \times 2^2 = 40 \text{ m.}$$

$$(h_3)_{t=3 \text{ sec}} = 60 \times \frac{1}{2} \times 3 - \frac{1}{2} \times 10 \times 3^2 = 45 \text{ m.}$$

$$\text{So, } h_1 = h_3 - h_2 = 45 - 40 = 5 \text{ m}$$

$$\text{Required ratio, } \frac{h_0}{h_1} = \frac{25}{5} = 5.$$