

Question #79453, Physics / Mechanics | Relativity

A particle is to be projected so as to just graze each of the three identical rings of diameter 2 meter each, and placed in parallel vertical planes at a distance 4 meter apart with their highest points at a height 6 meter above the point of projection. Find the angle of projection? Take $g = 10 \text{ m/s}^2$

Solution

The range of projection:

$$D = 8 \text{ m.}$$

The maximum height:

$$H = 6 \text{ m.}$$

The relation between the range R on the horizontal plane and the maximum height:

$$H = \frac{R}{4} \tan \theta$$

$$\tan \theta = \frac{4H}{R}$$

$$\theta = \tan^{-1} \frac{4H}{R} = \tan^{-1} \frac{4(6)}{8} = 72^\circ.$$

Answer: 72° .

Answer provided by <https://www.AssignmentExpert.com>