

Answer on Question #81693 - Physics - Mechanics - Relativity

Question:

A shell is fired from a cannon at a velocity of 300m/s to hit a target 3000m away. At what angle the horizontal should the cannon be aimed?

Solution:

$$L = \frac{v_0^2 \cdot \sin 2\alpha}{g}$$

$$\sin 2\alpha = \frac{L \cdot g}{v_0^2} = \frac{3000 \cdot 9.81}{300^2} = 0.327$$

$$2\alpha = \sin^{-1}(0.327) = 19.086^\circ$$

$$\alpha = \frac{19.086}{2} = 9.54^\circ$$

Answer: $\alpha = 9.54^\circ$

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