

Answer on Question #49181 – Physics - Mechanics | Kinematics | Dynamics

A rock thrown horizontally from a bridge hits the water below 30 meters away in the horizontal direction. If the rock was in the air for 2 seconds, how tall is the bridge?

Solution:

$L = 30\text{m}$ – horizontal distance travelled by the rock;

$t = 2\text{s}$ – time of travelling;

H – height of the bridge;

Equation of motion for the rock along Y-axis:

$$y: H = \frac{gt^2}{2} = \frac{9.8 \frac{\text{m}}{\text{s}^2} (2\text{s})^2}{2} = 19.6\text{m}$$

Answer: bridge is 19.6m height

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