

Answer on Question #74313-Physics-Other

A 105 g toy car is propelled by a compressed spring that starts it moving. The car follows the curved track. What is the final speed in meters per second of the toy car if its initial speed is 1.8 m/s and it costs up the frictionless slope gaining 0.0705 m in altitude.

Solution

From the conservation of energy:

$$\frac{mv_f^2}{2} + mgh = \frac{mv_i^2}{2}$$

$$v_f = \sqrt{v_i^2 - 2gh} = \sqrt{1.8^2 - 2(9.8)(0.0705)} = 1.4 \frac{m}{s}$$

Answer: $1.4 \frac{m}{s}$.

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