

Answer on Question #55366, Physics / Other

Task: A ball rolls with a speed of 2.0m/s across a level table that is 1.0m above the floor. Upon reaching the edge of the table, it follows a parabolic path to the floor. How far along the floor is the landing spot from the table?

Solution:

$h = gt^2/2$, $h = 1.0$ m., $g = 9.8$ m/s² , so time of falling the ball $t = (2h/g)^{1/2} = 0.45$ s.

During that 0.45 seconds, the ball moves horizontally by a distance of

$S = V \cdot t = (2.0 \text{ m/s}) \cdot (0.45 \text{ s}) = 0.90 \text{ m}.$

Answer: $S = 0.90$ m

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