

Answer on Question #69586-Physics / Other

I'm taking a trip aboard the Shanghai Transrapid Train. The train maintains its maximum commercial speed of $v = 430 \text{ km/h}$ along a straight. I position myself at the centre of my carriage and jump straight up at $u = 2 \text{ ms}^{-1}$.

How many horizontal meters am I displaced along the aisle before landing?

Solution

The time between jump and landing is

$$t = \frac{2u}{g}$$

So, distance with respect to the ground is

$$S = vt = 430 \times \frac{1000}{3600} \times \frac{2 \times 2}{9.8} = 46.2 \text{ m.}$$

The displacement along the aisle is zero.

Answer: zero.

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