

### Answer on Question #70637, Physics / Mechanics | Relativity |

#### Question

The average velocity of a body moving with uniform acceleration travelling a distance 2 m is 3m/s if change in velocity is 0.18m/s find acceleration

#### Solution

Average velocity

$$v = \frac{v_i + v_f}{2} = 3 \text{ m/s}, \quad (1)$$

where  $v_i$  and  $v_f$  are initial and final velocity on this distance.

Change of velocity

$$\Delta v = v_f - v_i = 0.18 \text{ m/s}. \quad (2)$$

From this two equation we find

$$v_i = 2.91 \text{ m/s};$$

$$v_f = 3.09 \text{ m/s}.$$

Acceleration can be found from the formula

$$a = \frac{v_f^2 - v_i^2}{2S} = \frac{3.09^2 - 2.91^2}{2 \cdot 2} = 0.27 \text{ ms}^{-2}.$$

**Answer:**  $a = 0.27 \text{ ms}^{-2}$ .

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