

A moving car comes to a stop in a distance of 125 m at a rate of -4.0 m/s^2 . What was V_i in Km/h and the time to stop?

$V_i = ?$ $a = -4.0 \text{ m/s}^2$ $V_f = 0$

$\vec{V}_f^2 = \vec{V}_i^2 + 2\vec{a}d$ $d = 125 \text{ m}$ $\vec{V}_f = \vec{V}_i + \vec{a}t$

$V_i^2 = V_f^2 - 2ad = 0^2 - 2(-4.0 \frac{\text{m}}{\text{s}^2})(125 \text{ m})$

$\sqrt{V_i^2} = \sqrt{+1000 \frac{\text{m}^2}{\text{s}^2}}$

b) $t = \frac{V_f - V_i}{a} = \frac{0 - (+31.6 \frac{\text{m}}{\text{s}})}{-4.0 \text{ m/s}^2} = 7.91 \text{ s}$

$\frac{\text{m}}{\text{s}^2} = \frac{\text{m}}{\text{s}} \cdot \frac{\text{s}}{\text{s}} = \text{s}$ dimensional analysis

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