Answer on Question 69890, Physics, Mechanics, Relativity

Question:

If a car with a velocity of 2.0 m/s at $t = 0$ s accelerates at a rate of 4.0 m/s^2 for 2.5 s, what is its velocity at $t = 2.5$ s?

Solution:

We can find the car velocity at $t = 2.5$ s from the kinematic equation:

$$v = v_0 + at,$$

here, $v_0 = 2.0$ m/s is the initial velocity of the car at $t = 0$ s, $a = 4.0$ m/s^2 is the acceleration of the car, t is the time.

Then, we get:

$$v(t = 2.5 \ s) = 2.0 \ \frac{m}{s} + 4.0 \ \frac{m}{s^2} \cdot 2.5 \ s = 12.0 \ \frac{m}{s}.$$

Answer:

$v(t = 2.5 \ s) = 12.0 \ \frac{m}{s}.$