Answer on Question #62047 - Physics - Optics

Question:

How long will it take a car to accelerate from 15.2 m/s to 23.5 m/s if the car has an average acceleration of 3.2 m/s^2 ?

Solution:

Let
   — initial speed (m/s),
v_1 — final speed (m/s),
a — average acceleration (m/s^2),
t — time (s).

To calculate the time, we divide the increment of speed by average acceleration: $t = \frac{v_1 - v_0}{a}$.

Substituting given data into the formula
we obtain $t = \frac{23.5 - 15.2}{3.2} = 2.59375$ s $\approx$ 2.59 s

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Answer:

approx. 2.59 s   (exact value = 2.59375 s)