

Question 24639

According to given conditions, $a = 3 \frac{m}{s^2}; t = 4s; v_0 = 0 \frac{m}{s}$.

For accelerated motion, velocity as function of time is $v(t) = v_0 + at$, and covered distance is $S(t) = \int_0^t v(t) dt = v_0 t + \frac{at^2}{2}$.

Hence, for our task velocity after 4 seconds is $v = v_0 + at = 0 + 3 \frac{m}{s^2} \cdot 4 s = 12 \frac{m}{s}$.

Covered distance after 4 seconds is $S = v_0 t + \frac{at^2}{2} = 0 + \frac{3 \cdot 4^2}{2} = 24 m$.