

Mathematics Questions by Topics

Motion and Force

Question 32

Source: K11SM2Q18

Question 32

A body of mass m kg moves in a straight line, its velocity is v ms⁻¹ at a time t seconds. The force acting on the body is $f(t)$ newtons.

Given that $v = v_1$ when $t = t_1$ and $v = v_2$ when $t = t_2$, it follows that

- A. $mv_2 - mv_1 = f(t_2) - f(t_1)$
- B. $mv_2 - mv_1 = \int_{t_1}^{t_2} f(t) dt$
- C. $v_2 - v_1 = m \int_{t_1}^{t_2} f(t) dt$
- D. $\frac{1}{2}mv_2^2 - \frac{1}{2}mv_1^2 = f(t_2) - f(t_1)$
- E. $\frac{1}{2}mv_2^2 - \frac{1}{2}mv_1^2 = \int_{t_1}^{t_2} f(t) dt$