

Mathematics Questions by Topics

Motion and Force

Question 33

Source: K11SM2Q19

Question 33

A car of mass m kg is travelling on a level roadway. The engine exerts a constant propulsive force of F newtons and the total resistance to the motion of the car is kv^3 newtons, where k is positive constant and v is its speed in m/s. The car moves from rest, the distance travelled in metres until it obtains a speed of V , is given by



- A. $\frac{V^2}{2(F - kV^3)}$
- B. $\frac{mV^2}{2(F - kV^3)}$
- C. $\frac{m}{2} \int_0^V \frac{v^2}{F - kv^3} dv$
- D. $\int_0^V \frac{mv}{F - kv^3} dv$
- E. $\int_0^V \frac{v}{F - kv^3} dv$