Question #55932, Physics / Classical Mechanics |

A car of mass m has an engine which can deliver power P.The minimum time in which car can be accelerated from rest to a speed v is
(a) (mv^2)/2P
(b) Pmv^2
(c) 2Pmv^2
(d) (mv^2)P/2

Answer:

Kinetic energy of car which is needed to provide speed v is:

$E = (mv^2)/2$

From another hand, P = E/t, where t – the time of acceleration.

Thus, $t = E/P = (mv^2)/2P$. **Answer is (a)**.