

An object is thrown upward with a speed of 25ms^{-1} . How high will it be when the speed is 12ms^{-1} ?

A) $S=ut + \frac{1}{2} at^2$

B) $S= (u+v)t/2$

C) $V=u+ at$

D) $V^2=U^2+2aS$

Which equation will allow the problem to be solved in a single calculation?

Solution:

The speed at the moment of time $t = 0$ will be $u=25\text{ms}^{-1}$.

The speed at the height "S" will be $V=12\text{ms}^{-1}$. We don't know in which moment of time will it be.

A) $S=ut + \frac{1}{2} at^2$

We cannot use this equation, because we don't know the time «t».

B) $S= (u+v)t/2$

The same situation: we cannot use this equation, because we don't know the time «t»

C) $V=u+ at$

The same.

D) $V^2=U^2+2aS$

We know all values in this equation. So we can use it for finding «S».

Answer:

Equation «D» will allow the problem to be solved in a single calculation.