Answer on Question #70763 – Physics – Mechanics | Relativity

A body is moving with uniform acceleration. It's velocity after 5s is 25 m/s and after 8s it is 34 m/s. calculate the distance it will travel in the 12th second.

Solution.

$$v = v_0 + at,$$

hence

$$\begin{cases} 25 = v_0 + a \cdot 5 \\ 34 = v_0 + a \cdot 8 \end{cases}$$

and $a = 3m/s^2, v_0 = 10m/s$.

For distance we have $s = v_0 t + \dfrac{at^2}{2} = 10 \cdot 12 + 3 \cdot \dfrac{12^2}{2} = 336m.$

Answer. $336m.$