

Answer on Question #47086, Physics, Mechanics - Kinematics - Dynamics

If the constant acceleration continues for 6.0 seconds, what will be its velocity then

By the definition, acceleration:

$$a = \frac{dv}{dt}$$

If acceleration is constant:

$$adt = dv \rightarrow a(t - t_0) = v_{end} - v_0$$
$$v_{end} = v_0 + a(t - t_0)$$

So, the velocity will be

$$v_{end} = v_0 + 6a$$

Answer: $v_{end} = v_0 + 6a$