

Answer on question

If a car speeds up from 35 mph to 75 mph in 5 seconds what is the acceleration?

Solution

The acceleration by definition is:

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

We consider that acceleration is constant and after integrating we get:

$$a(t_2 - t_1) = v_2 - v_1 \rightarrow a = \frac{v_2 - v_1}{t_2 - t_1} = \frac{75 - 35}{5} = 8 \frac{m}{s^2}$$

Answer $a = 8 \frac{m}{s^2}$.

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