Answer on Question #57758-Physics-Mechanics-Relativity

A car initially at rest undergoes uniform acceleration for 6.32 seconds and covers a distance of 120 meters. What is the approximate acceleration of the car?

Solution

$$v = u + at\,.$$

The initial velocity u is zero. Hence,

$$v = at.$$

We also know that:

$$v^2 = u^2 + 2as$$

$$v^2 = 2as$$

$$(at)^2 = 2as$$

$$a = \frac{2s}{t^2} = \frac{2 \cdot 120}{6.32^2} = 6\frac{m}{s^2}.$$

Answer: $6\frac{m}{s^2}$.