

⑥

Kinematics

3.6 A car starts from rest and after 20 seconds its velocity becomes 108 kmh^{-1} . Find the acceleration of the car.

DATA:-

$$\text{Initial velocity} = 0 \text{ ms}^{-1}$$

$$\begin{aligned} \text{Final velocity} &= 108 \text{ kmh}^{-1} \\ &= \frac{108 \times 1000}{3600} \\ &= 30 \text{ ms}^{-1} \end{aligned}$$

$$\text{Time taken} = 20 \text{ sec}$$

$$\text{acceleration} = a = ?$$

SOLUTION:-

$$a = \frac{v_f - v_i}{t}$$

$$a = \frac{30 - 0}{20}$$

$$a = \frac{30}{20}$$

$$a = 1.5 \text{ ms}^{-2}$$

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