

## Kinematics

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39 A car starting from rest attains a velocity of  $20 \text{ ms}^{-1}$  in 5 secs. Find the distance covered by the car.

DATA:-

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

$$\text{Final velocity} = 20 \text{ ms}^{-1}$$

$$\text{Time Taken} = 5 \text{ secs}$$

$$\text{Acceleration} = ?$$

$$\text{Distance} = S = ?$$

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SOLUTION:-

for acceleration

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

$$a = \frac{20 - 0}{5}$$

$$a = \frac{20}{5}$$

$$a = 4 \text{ ms}^{-2}$$

for Distance

$$2as = v_f^2 - v_i^2$$

$$s = \frac{v_f^2 - v_i^2}{2a}$$

$$= \frac{(20)^2 - (0)^2}{2(4)}$$

$$= \frac{400}{8}$$

$$= 50 \text{ m}$$