

**QUESTION:**

how far will a car travel from a standing start if it accelerates at 4 meter per second square for 9 seconds?

**SOLUTION:**

The motion equation for the case of constant acceleration is

$$s = v_0 t + \frac{at^2}{2}$$

Where

$s$  is the distance, traveled by the car

$v_0$  is the initial speed of the car

$a$  is the acceleration of the car

$t$  is the time

Here

$v_0 = 0 \text{ m/s}$ , because the car travels from a standing start

$a = 9 \text{ m/s}^2$

$t = 9 \text{ seconds}$

Hence

$$s = \frac{9 \cdot 4^2}{2} = 72 \text{ m}$$

**ANSWER:**

**72 meters**