

**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

$a = 4 \text{ m/s}^2$

$t = 9$  seconds

Hence

$$s = \frac{4 \cdot 9^2}{2} = 162 \text{ m}$$

**ANSWER:**

**162 meters**