

Answer on Question #80475, Physics / Mechanics | Relativity

Question:

If someone is riding a car that can accelerate at  $4.2\text{m}\cdot\text{s}^{-2}$ . How long would it take them to reach 100km per hour.

Solution:

If a car has the acceleration  $a$ , then its velocity  $v = a \times t$  and the distance

$s = 0.5at^2 = 0.5a\left(\frac{v}{a}\right)^2 = 0.5\frac{v^2}{a}$ . 100 km per hour equals to 27.8 m/c, respectively

$$s = 0.5 \frac{27.8^2}{4.2} = 92 \text{ (m)}.$$

The answer:

$$s = 0.5 \frac{v^2}{a} = 92 \text{ m}.$$

Answer provided by <https://www.AssignmentExpert.com>