Question #53846, Physics / Other

A body starts from rest and moves with a uniform acceleration of 2m/s in a straight line. After how long will the body be 200 m from its starting point?

Solution: The distance traveled is found by using the equation:

$s = v_0t + at^2/2$, where v_0 – the initial speed (this case $v_0 = 0$), t – the time and a – the acceleration.

After substituting all known parameters the following equation is obtained:

200 m $= 0 + (2$ m s$^{-2})t^2/2$,

Thus, $t^2 = 200$, so that t = 14.14 s

Answer: the time is 14.14 s.