Worksheet: Kinematics Part 1 – x (no v_i)

$x = v_{initial}\, t + \frac{1}{2}\, a\, t^2$

NAME:

1. Read the following problem
2. Highlight your "proof" for assigning variables
3. List the givens
4. Solve
5. Write your answer with the proper units

A typical car is able to accelerate at a rate of 4.0 m/s^2. If you push the gas pedal of your car all the way down for a full 10 seconds, how far will you travel? - 3 pts -

- Displacement - m, how far
- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Acceleration - m/s^2
- Time - s, how long…

Givens	Work

Answer

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A sprinter starting from rest is able to accelerate at a rate of 3.7 m/s^2. How far is she able to run in 5.0 seconds if she is able to maintain her acceleration this entire time? - 3 pts -

- Displacement - m, how far
- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Acceleration - m/s^2
- Time - s, how long…

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A stone is dropped from rest from the top of a tall building. After 5.00 s of free-fall, what is the displacement of the stone? - 3 pts -

- Displacement - m, how far
- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Acceleration - m/s^2
- Time - s, how long…

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A stone is dropped into a deep well and is heard to hit the water 3.41 s after being dropped. Determine the depth of the well. - 3 pts -

- Displacement - m, how far
- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Acceleration - m/s^2
- Time - s, how long…

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A spring in a toy gun is able to accelerate the plastic ball at a rate of 1.1 m/s^2. If the manufacturer wants the spring to be in contact with the plastic ball for only 0.50 s, far must the ball be pushed? - 3 pts -

- Displacement - m, how far
- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Acceleration - m/s^2
- Time - s, how long…

Givens	Work

Answer