Student Name: _____ Date: _____

Period #: _____

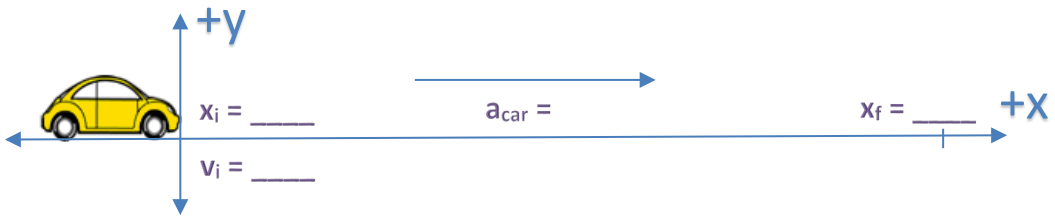
Unit 1: Quiz 16

1-Dimensional Motion

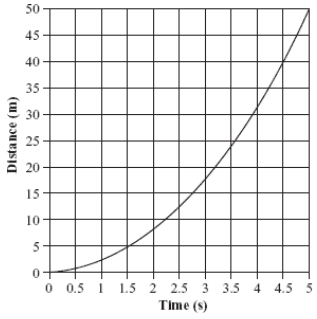
1. A group of students conducted a lab out in front of the school and computed the acceleration of a car ($\mathbf{a_{car}}$) over a short distance to be $2\ \frac{m}{s^2}$. Assuming the car maintained this constant acceleration over a ¼ mile, what would the cars ¼ mile time be in seconds if it started from rest?

   Note: Use the following equation and fill in the values x_i, x_f, v_i and a_{car} in the picture below before preceding:

   Equation: $\boldsymbol{x_f = x_i + v_i t + \frac{1}{2} a_{car} t^2}$



2. A group of students conducted a lab and obtained the following distance vs. time graph for a toy car.



Which of the following conclusions about the toy cars motion is correct? EXPLAIN

   A. The toy car is accelerating

   B. The toy car is stopping and starting

   C. The toy car is traveling at a constant velocity

   D. The toy car moved 45 meters in 4 seconds

3. A car comes to a stop after uniformly decelerating at 3.5 $\frac{m}{s^2}$ for 7 s. What distance is traveled by the car during this time?

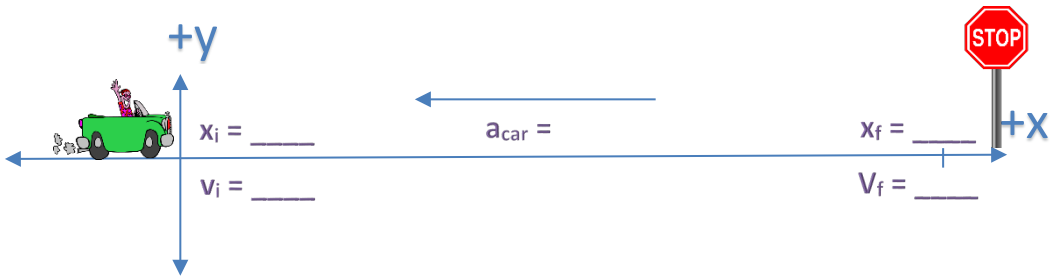
Note: Fill in the values x_i, x_f, v_i, v_f and a_{car} in the picture below before preceding:

Useful Kinematics equations when acceleration is constant:

$$\boldsymbol{x_f = x_i + v_i t + \frac{1}{2} a_{car} t^2}$$

$$\boldsymbol{v_{f_x} = v_{i_x} + a_{car} t}$$

$$\boldsymbol{v_{f_x}^2 = v_{i_x}^2 + 2a(x_f - x_i)}$$



1.