

PhyzJob: Little Dudes Ride Again II

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1. In *PhyzJob: Little Dudes II*, we learned how to plot velocity vs. clock reading graphs for our little dudes. In *PhyzJob: Little Dudes I*, we learned that $v = \Delta x / \Delta t$.

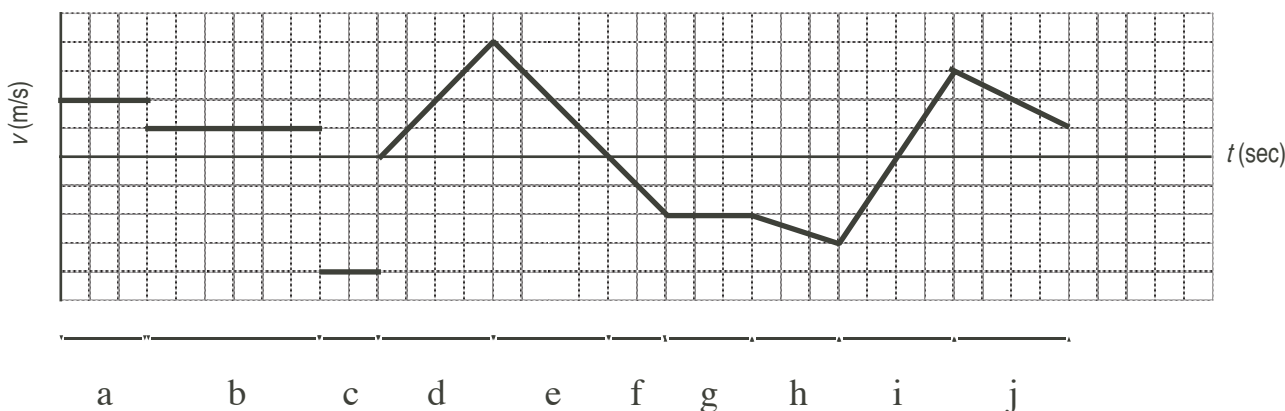
a. Rewrite the equation stated above, solving for Δx .

$$\Delta x = v\Delta t$$

b. Examine a single velocity vs. clock reading graph, such as one drawn in *Little Dudes II*. What is a *graphical* interpretation of your equation for Δx above? (For example, a graphical interpretation of $v = \Delta x / \Delta t$ is that the velocity of a body is equal to the slope of the plot of position vs. clock reading.)

The change in position of a body is equal to the area bounded by the velocity vs. clock reading plot.

2. Apply your interpretation above to the velocity vs. clock reading plot below. Determine the change in position Δx the body underwent in each interval indicated.



a. $\Delta x = 2\text{m/s} \cdot 3\text{s}$
 $\Delta x = 6\text{m}$

e. $\Delta x = (1/2)4\text{m/s} \cdot 4\text{s}$
 $\Delta x = 8\text{m}$

i. \square
 $\Delta x =$
 $(1/2)(-3\text{m/s} + 3\text{m/s})4\text{s}$
 $\Delta x = 0\text{m}$

b. $\Delta x = 1\text{m/s} \cdot 6\text{s}$
 $\Delta x = 6\text{m}$

f. $\Delta x = (1/2)-2\text{m/s} \cdot 2\text{s}$
 $\Delta x = -2\text{m}$

j.
 $\Delta x =$
 $(1/2)(3\text{m/s} + 1\text{m/s})4\text{s}$
 $\Delta x = 8\text{m}$

c. $\Delta x = -4\text{m/s} \cdot 2\text{s}$
 $\Delta x = -8\text{m}$

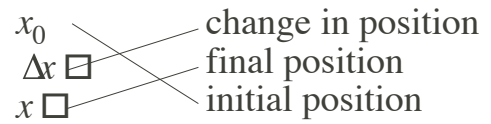
g. $\Delta x = -2\text{m/s} \cdot 3\text{s}$
 $\Delta x = -6\text{m}$

d. $\Delta x = (1/2)4\text{m/s} \cdot 4\text{s}$
 $\Delta x = 8\text{m}$

h. $\Delta x = (1/2)(-2\text{m/s} + -3\text{m/s})3\text{s}$
 $\Delta x = -7.5\text{m}$

3. Matching. □

Match the symbol to the appropriate phrase.



4. Determine the value of the initial position, change in position, and final position of the body whose velocity vs. clock reading is shown above.

- | | | |
|--|--|---|
| a. $x_0 = \boxed{0}$
$\Delta x = \boxed{6m}$
$x = \boxed{6m}$ | e. $x_0 = \boxed{12m}$
$\Delta x = \boxed{8m}$
$x = \boxed{20m}$ | i. $x_0 = \boxed{4.5m}$
$\Delta x = \boxed{0}$
$x = \boxed{4.5m}$ |
| b. $x_0 = \boxed{6m}$
$\Delta x = \boxed{6m}$
$x = \boxed{12m}$ | f. $x_0 = \boxed{20m}$
$\Delta x = \boxed{-2m}$
$x = \boxed{18m}$ | j. $x_0 = \boxed{4.5m}$
$\Delta x = \boxed{8m}$
$x = \boxed{12.5m}$ |
| c. $x_0 = \boxed{12m}$
$\Delta x = \boxed{-8m}$
$x = \boxed{4m}$ | g. $x_0 = \boxed{18m}$
$\Delta x = \boxed{-6m}$
$x = \boxed{12m}$ | |
| d. $x_0 = \boxed{4m}$
$\Delta x = \boxed{+8m}$
$x = \boxed{12m}$ | h. $x_0 = \boxed{12m}$
$\Delta x = \boxed{-7.5m}$
$x = \boxed{4.5m}$ | |

5. SUPER-CHALLENGE. Use the information above to plot the position vs. clock reading of the body. *Careful: There is more to this than plotting the points and connecting the dots!*

