PhyzJob:
Little Dudes Ride Again II

Felix

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 $v = \Delta x/\Delta t$.

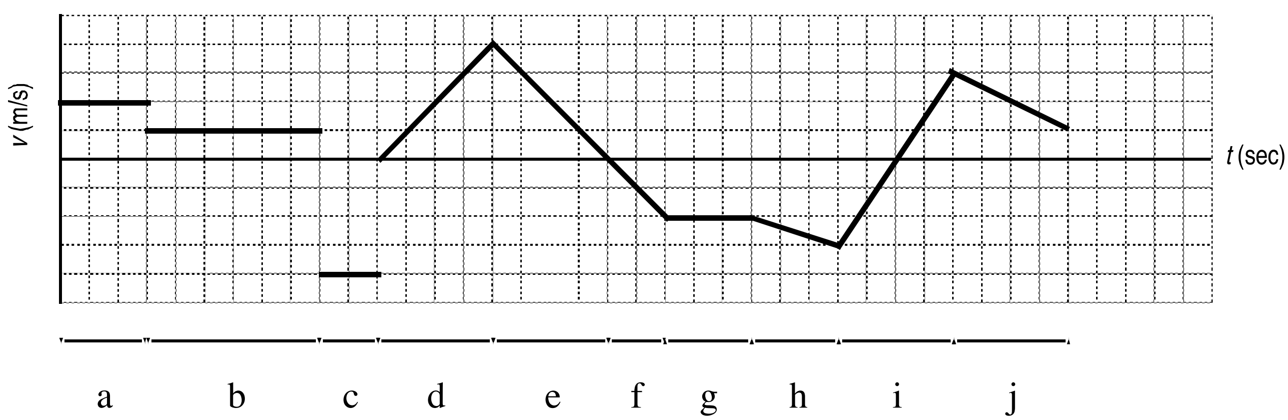
a. Rewrite the equation stated above, solving for Δx.

x = v 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. x = 2m/s · 3s
x = 6m

b. x = 1m/s · 6s
x = 6m

c. x = –4m/s · 2s
x = –8m

d. x = (1/2)4m/s · 4s
x = 8m

e. x = (1/2)4m/s · 4s
x = 8m

f. x = (1/2)–2m/s · 2s
x = –2m

g. x = –2m/s · 3s
x = –6m

h. x = (1/2)(–2m/s + –3m/s)3s
x = –7.5m

i. x = (1/2)(–3m/s + 3m/s)4s
x = 0m

j. x = (1/2)(3m/s + 1m/s)4s
x = 8m

3. Matching.
Match the symbol to the appropriate phrase.

x_0	change in position
Δx	final position
x	initial position

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. $x_0 =$ 0
$\Delta x =$ 6m
$x =$ 6m

b. $x_0 =$ 6m
$\Delta x =$ 6m
$x =$ 12m

c. $x_0 =$ 12m
$\Delta x =$ −8m
$x =$ 4m

d. $x_0 =$ 4m
$\Delta x =$ +8m
$x =$ 12m

e. $x_0 =$ 12m
$\Delta x =$ 8m
$x =$ 20m

f. $x_0 =$ 20m
$\Delta x =$ −2m
$x =$ 18m

g. $x_0 =$ 18m
$\Delta x =$ −6m
$x =$ 12m

h. $x_0 =$ 12m
$\Delta x =$ −7.5m
$x =$ 4.5m

i. $x_0 =$ 4.5m
$\Delta x =$ 0
$x =$ 4.5m

j. $x_0 =$ 4.5m
$\Delta x =$ 8m
$x =$ 12.5m

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!*