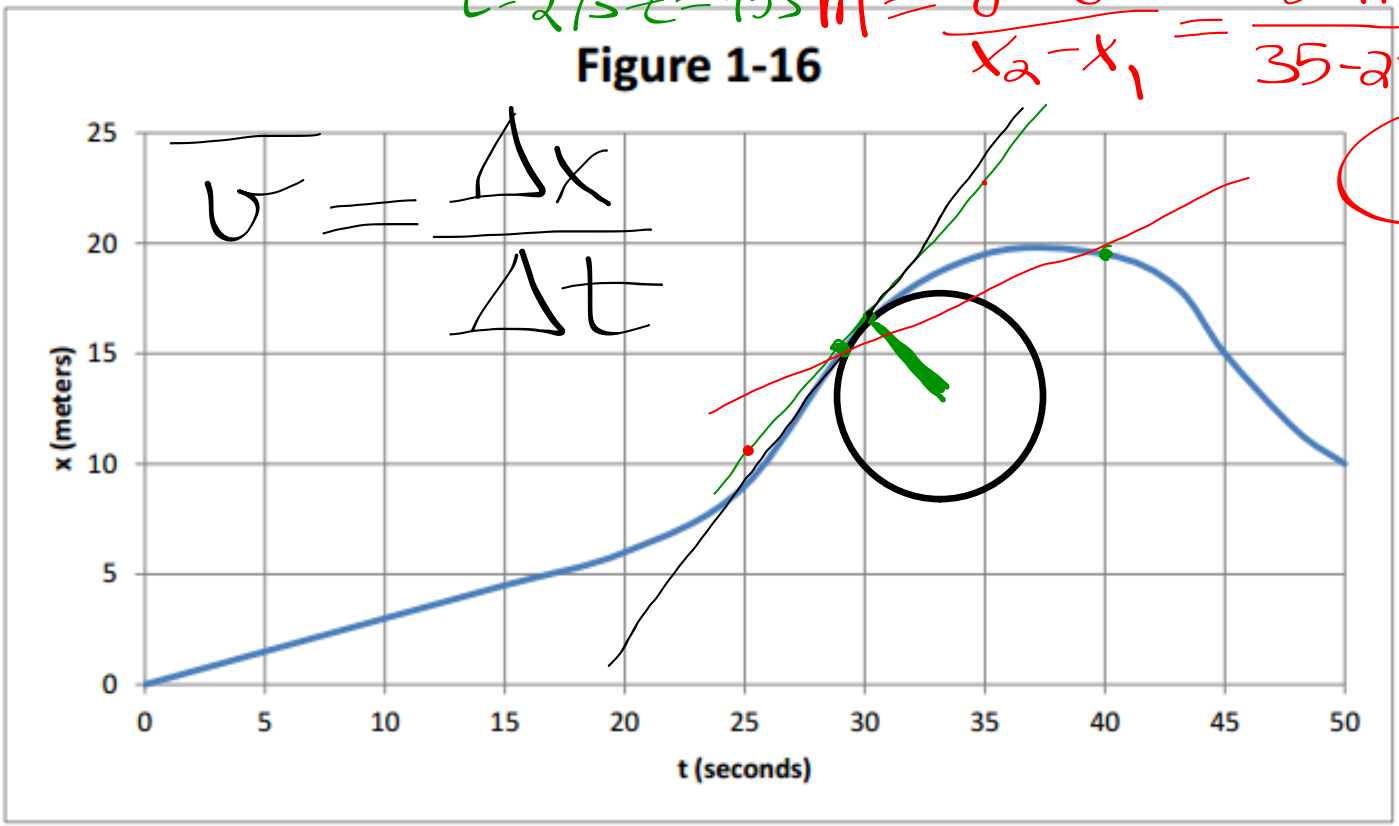
49. The position of a rabbit along a straight tunnel as a function of time is plotted in Figure 1-16. What is its

a) Instantaneous velocity at t=10.0 s?
b) Instantaneous velocity at t=30.0 s?
c) Average velocity between t=0 and t=5.0 s?
d) Average velocity between t=25.0 s and t=30.0 s?
e) Average velocity between t=40.0 s and t=50.0 s?

(25,11)
(35,22)
t=25s t=35s $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{22-11}{35-25} = \frac{11}{10} =$ 1.1 m/s

Figure 1-16



$\bar{v} = \frac{\Delta x}{\Delta t}$

51. Figure 1-17 shows the velocity of a train as a function of time.
    a) At what time was its velocity greatest?
    b) During what periods, if any, was the velocity constant?
    c) During what periods, if any, was the acceleration constant?
    d) When was the magnitude of the acceleration greatest? What was the acceleration?

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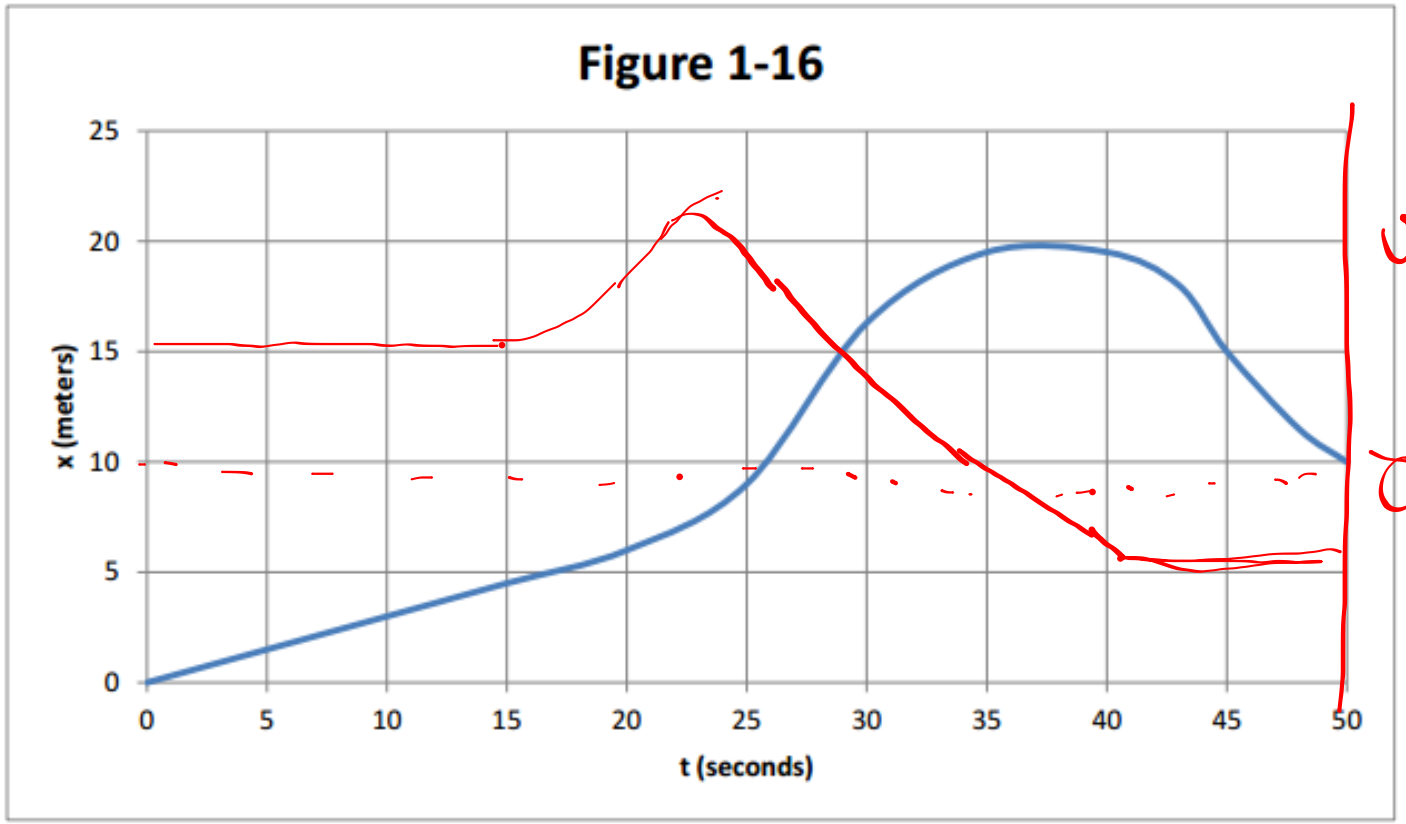

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