Physics 161 (Fall 2018)
Quiz #1 (29-Aug-2018)

For the motion plotted below, estimate

(a) the greatest velocity in the positive \( x \)-direction,
(b) the greatest velocity in the negative \( x \)-direction,
(c) any times when the object is instantaneously at rest, and
(d) the average velocity over the interval shown.

Solution:
This is Exercise 2.20 on page 28. Tangent lines have been drawn on the graph for parts (a) and (b).

(a) \( v_a \approx 3.1 \text{ m/s} \).
(b) \( v_b \approx -1.5 \text{ m/s} \).
(c) Zero tangent-line slope occurs at \( 0 \text{s} \), \( 3 \text{s} \), and \( 5 \text{s} \).
(d) \[
\bar{v} = \frac{\Delta x}{\Delta t} = \frac{3 \text{ m} - 0 \text{ m}}{6 \text{s} - 0 \text{s}} \Rightarrow \bar{v} = 0.5 \text{ m/s}.
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