Limits and Motion 5-28-08

1. Leaving Spokane you and a friend drive west to Seattle, a distance of 275 miles. If it takes 4.5 hours, what is your average *velocity* over the travel time?

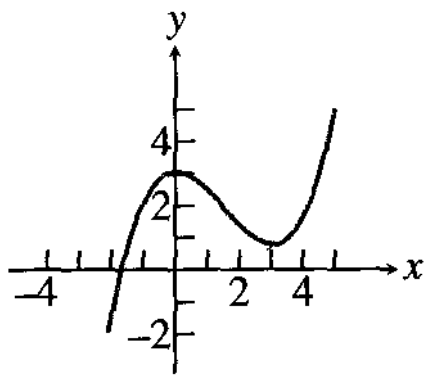
Instantaneous Velocity

Velocity Question

A ball rolls a distance of 16 feet in 4 seconds. What is the instantaneous *velocity* of the ball at a moment of time 3 seconds after it starts to roll?

In Exercises 7–10, use the graph to estimate the slope of the tangent line, if it exists, to the graph at the given point.

8. $x = 1 \quad -1$



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2. Find the instantaneous *velocity* with the given position function at the indicated value of ***t***.

$$s(t) = \frac{2}{t+1} \quad \text{at} \quad t = 2$$

3. Graph the function using your grapher and estimate the derivative of the function at the given point by interpreting it as the tangent line slope.

$$f(x) = \tfrac{1}{2}x^2 + 2x - 5 \quad at \quad x = 2$$