

§2.6 (PART 1): THE DERIVATIVE AT A POINT

- 1.] A particle is moving along a straight line so that its distance from the starting position is given by $f(x) = 5x - 2x^2$, where $f(x)$ is measured in feet and x in seconds. What is the particle's instantaneous velocity at $x = 2$ seconds?

- 2.] Find the slope of the tangent line to the graph of $f(x) = \sqrt{x+1}$ at the point $(0, f(0))$.

- 3.] Find the slope of the tangent line to the graph of $f(x) = \frac{1}{2}x^2 - 5x + 7$ at the point $(2, f(2))$. Use both forms of the limit definition to compute the slope of the tangent line. Use this information to determine the equation of the tangent line at that point.