## Section 3.10: Linear Approximations and Differentials

(1) In this section, we explore how we can use the tangent line to a function f(x) at a point x = a to approximate the function. Explain why this works. Can the tangent line be uses as a good approximation for the entire function?

(2) Are the linearization of a function and its tangent line different? Explain your reasoning.

(3) If we are using the tangent line to a function  $f(x) = \sqrt{x+3}$  to approximate  $\sqrt{4.2}$ , at what x value should we find the tangent line and what value should we plug in for x when we are done?

	We also talk about differentials in $x$ , $\Delta y$ and $dy$ . Illustrate with a		nnetion between $\Delta x$ ,
		, and the second	
	xplain how we can use different elative error and percentage error		s. Define the terms
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