

Alternate Form of the Derivative

$$f'(c) = \lim_{x \rightarrow c} \frac{f(x) - f(c)}{x - c}$$

$$\lim_{x \rightarrow c^-} \frac{f(x) - f(c)}{x - c} \quad \text{and} \quad \lim_{x \rightarrow c^+} \frac{f(x) - f(c)}{x - c}$$

These One-Sided Limits are called

Derivative from the Left and Derivative from the Right

If a function is not continuous at $x = c$, then it is not differentiable at $x = c$.

Using the contrapositive: If a function is differentiable at $x = c$, then it must be continuous at $x = c$.

In other words: Differentiability Implies Continuity.

Assignment 107:

Page 103, #'s 57, 82, 83, 86, 92, 95