Continuity

Notes

Defining Continuity:

A function f is continuous at a point x=c if

(1) f(c) is defined.

(2) $\lim_{x \to c} f(x)$ exists $\left(\lim_{x \to c^+} f(x) = \lim_{x \to c^-} f(x)\right)$

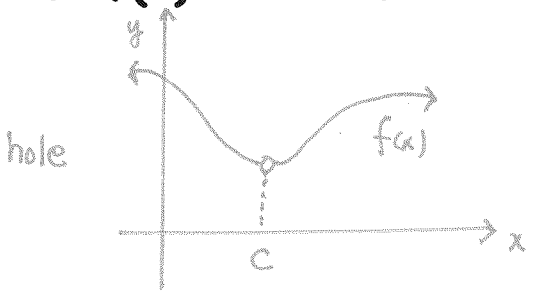
(right-hand-side and left-hand-side)

(3) $\lim_{x \to c} f(x) = f(c)$

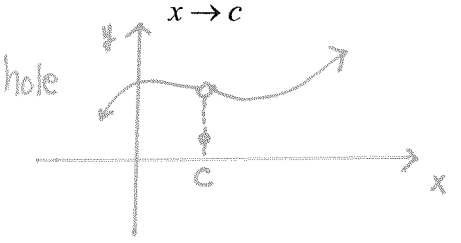
Notes

Discontinuity

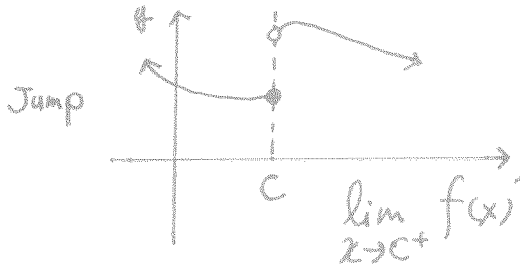
a. f(c) is undefined



b. f(c) is defined but, $\lim_{x \to c} f(x) \neq f(c)$

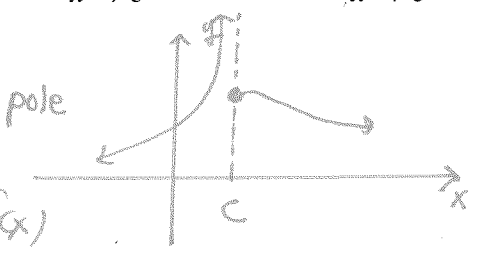


c. $\lim_{x \to c} f(x) \neq f(c)$



$\lim_{x \to c^+} f(x) \neq \lim_{x \to c^-} f(x)$

d. $\lim_{x \to c^-} f(x) = +\infty$ $\lim_{x \to c^+} f(x) = f(c)$



e. $\lim_{x \to c^+} f(x) = +\infty$ $\lim_{x \to c^-} f(x) = +\infty$