

1. Continuity

- Suppose f is a real function on a subset of the real numbers and c be a point in the domain of f . Then, f is continuous at c , if $\lim_{x \rightarrow c} f(x) = f(c)$

More elaborately, we can say that f is continuous at c , if

$$\lim_{x \rightarrow c^-} f(x) = \lim_{x \rightarrow c^+} f(x) = f(c)$$

- If f is not continuous at c , then we say that f is discontinuous at c and c is called the point of discontinuity.
- A real function f is said to be continuous, if it is continuous at every point in the domain of f .
- If f and g are two continuous real functions, then
 - $(f + g)$, $(f - g)$, $f \cdot g$ are continuous
 - $\frac{f}{g}$ is continuous provided g assumes non zero value.
- If f and g are two continuous functions, then $f \circ g$ is also continuous.