

Chapter 10: Function: Local study

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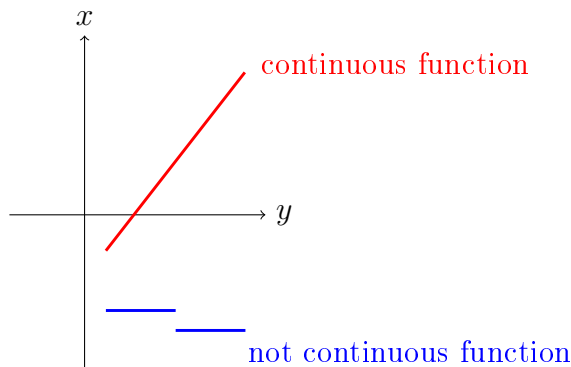
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1 Continuity

1.1 First approach

Let f be a function from $I \subset \mathbb{R}$ to \mathbb{R} , we say that f is continuous over I if "the graph of f can be drawn without taking off the pencil from the paper".

1.1.1 Example



1.2 Definition

① f continuous at $a \in I$:

we say f is continuous at a - a being a point of I - if and only if:

$$f(a) = \lim_{x \rightarrow a} f(x)$$

$$f(a) = \lim_{\substack{x \rightarrow a \\ x > a}} f(x) = \lim_{\substack{x \rightarrow a \\ x < a}} f(x)$$

② f continuous over I :

we say f is continuous over $I \subset \mathbb{R}$ if and only if $\forall a \in I, f$ is continuous at a