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The foundations of the rigorous study of analysis were laid in the nineteenth century, notably by the mathematicians Cauchy and Weierstrass. Central to the study of this subject are the formal definitions of limits and continuity.

Let D be a subset of $\mathbf{R}$ and let $f\colon D \to R$ be a real-valued function on D. The function f is said to be continuous on D if, for all $\epsilon > 0$ and for all $x \in D$, there exists some $\delta > 0$ (which may depend on x) such that if $y \in D$ satisfies —y - x— ¡ $\delta then |f(y) - f(x)| < \epsilon$.

One may readily verify that if f and g are continuous functions on D then the functions $f + g$, $f - g$ and $f.g$ are continuous. If in addition g is everywhere non-zero then f/g is continuous.