Piecewise

In mathematics, a **piecewise-defined function** $f(x)$ of a real variable x is a function whose definition is given differently on disjoint intervals of its domain.

A common example is the absolute value function.

Other examples are the illustrated function, discontinuous at x_0, and the Heaviside step function, a piecewise linear function discontinuous at 0. The word *piecewise* is also used to describe any property of a piecewise function that holds for each piece but may not hold for the whole domain of the function. The major structure of the definition of a piecewise function is an *if-then-else* clause.
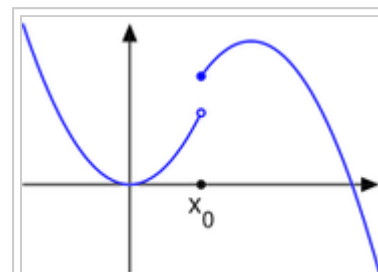
A *piecewise* or *piecewise-continuous* function comprising different quadratic functions on either side of x_0.

A synonym for *piecewise* is **piecewise continuous**. A function is **piecewise differentiable** or **piecewise continuously differentiable** if each piece is differentiable throughout its domain.

See also

- Spline
- B-spline

Category: Calculus