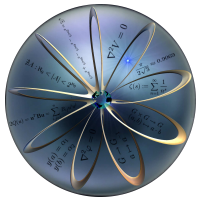

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Bolzano's theorem

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A continuous function can not change its http://planetmath.org/SignumFunction*sign without going through the zero.*

This contents of Bolzano's theorem may be formulated more precisely as the

Theorem. If a real function f is continuous on a closed interval I and the values of f in the end points of I have http://planetmath.org/Positiveopposite signs, then there exists a zero of this function inside the interval.

The theorem is used when using the interval halving method for getting an approximate value of a root of an equation of the form $f(x) = 0$.