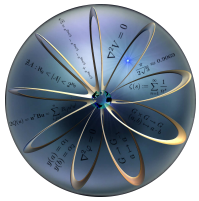

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order of vanishing

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Definition. Let x_0 be a `http://planetmath.org/ZeroOfAFunction`zero of the real function Δ. The *order of vanishing* of Δ at x_0 is n, if $\lim\limits_{x\to x_0} \dfrac{\Delta(x)}{x^n}$ has a non-zero finite value.

Usually, x_0 of the definition is 0.

Example. If the curves $y = f(x)$ and $y = g(x)$ have in the point $(x_0,\, y_0)$ the order of contact n, then the difference $\Delta(h) := g(x_0 + h) - f(x_0 + h)$ of the ordinates has $n+1$-order of vanishing.