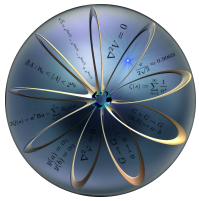

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Taylor's theorem

Canonical name	TaylorsTheorem
Date of creation	2013-03-22 11:56:53
Last modified on	2013-03-22 11:56:53
Owner	Andrea Ambrosio (7332)
Last modified by	Andrea Ambrosio (7332)
Numerical id	11
Author	Andrea Ambrosio (7332)
Entry type	Theorem
Classification	msc 41A58
Related topic	TaylorSeries

1 Taylor's Theorem

Let f be a function which is defined on the interval (a, b) and suppose the nth derivative $f^{(n)}$ exists on (a, b). Then for all x and x_0 in (a, b),

$$R_n(x) = \frac{f^{(n)}(y)}{n!}(x - x_0)^n$$

with y strictly between x and x_0 (y depends on the choice of x). $R_n(x)$ is the nth remainder of the Taylor series for $f(x)$.