

approximation by series expansion

Source: <http://sci.tech-archive.net/Archive/sci.math/2007-08/msg02653.html>

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 - *Date:* Thu, 16 Aug 2007 23:00:55 +0200
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Hi everybody!

I try to approximate the term $1/(a-x)$
or $1/(a-\cos(\theta))$ for $a > 1$.

In order to approximate it I want to expand it in a power series.

Is there a rule of thumb which kind of expansion will give me the
best convergence in the region $x \in [0,1]$?

It is easy to get good convergence for moderate a . However, for a close to 1
(e.g. 1.01 the convergence is quite bad)

Is there a reasonable way to make the expansion be exact at $x=0$ and $x=1$ at
the same time?

Thank You,

Andreas

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