

sci.math: Re: $\cos(x) \geq 1 - x^2/2! + x^4/4! - x^6/6!$

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Oleg wrote:

> *I think you can clear up this thing considering the function*
> $h(x) = \cos(x) - (1 - x^2/2! + x^4/4! - x^6/6!)$ and looking for its
> *minimums by means of derivatives.*

I expect someone has pointed this out –
I haven't been following the thread –
but I think the OP said he knew the result was true for small x –
actually it follows from the form of Taylor's Theorem with remainder
that it is true for $-\pi/2 < x < \pi/2$.

If one assumes that, then it is sufficient to show $h(x)$ has no zero.
If it has a zero then so does $h'(x)$ by the Mean Value Theorem,
and then it follows that so does $h''(x)$ since $h'(0) = 0$.
But that is the same result with $n-2$ in place of n .

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