

# Re: Integral of even functions

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*Source:* <http://sci.tech-archive.net/Archive/sci.math/2007-05/msg04813.html>

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- *From:* Chip Eastham <[hardmath@xxxxxxxx](mailto:hardmath@xxxxxxxx)>
  - *Date:* 27 May 2007 14:52:41 -0700
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On May 27, 4:41 pm, esej...@xxxxxxxx wrote:

Hi there!

I came across an interesting thing. Integration of some even functions from minus infinity to plus infinity is equal to zero. I have observed similar thing for some Hermitian functions. Is this fact well known in mathematics? If yes, what are the cases when this is true?

Thanks!

Did you perhaps mean to say that integration of some *\_odd\_* functions from  $-\infty$  to  $+\infty$  gives zero (when the improper integral converges)?

It would be something of a special case for such an integral of an even function to give zero.

Consider "bell curve"  $y = e^{-x^2}$ . It's obviously an even function, and the integral over  $(-\infty, +\infty)$  can be performed by a well-known trick using polar coordinates:

<http://planetmath.org/encyclopedia/AreaUnderTheBellCurve.html>

to give area  $\sqrt{\pi}$ .

regards, chip

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