

Re: Preposterous change of variables

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- *From:* "Igor" <thoovler@xxxxxxxxxxx>
 - *Date:* 9 Nov 2006 10:24:03 -0800
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actionintegral@xxxxxxxxxxx wrote:

Igor wrote:

actioninteg...@xxxxxxxxxxx wrote:

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actionintegral@xxxxxxxxxxx wrote:

Okay, now I see what you are saying. You're seeking a solution that is additively separable, i.e. one that has $\psi(u,v) = \psi_1(u) + \psi_2(v)$. And the equation will indeed admit such a solution.

Now here is where it ties in to where you helped me before. When I separate using waves $u=x-vt$, I get nonrelativistic solutions. But when I separate using waves $u=x-ct$, how do I interpret the answers?

The main problem is that you really can't properly interpret the answers since this would take it outside the domain of the Schroedinger equation itself. Since the equation is only valid for $v \ll c$, using c in your substitution wouldn't give any real physically meaningful result. For that, you would need to apply it to one of the relativistic wave equations, such as Klein-Gordon or Dirac.