

Re: How do I solve this system of ODEs?

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- *From:* Protoman <Protoman2050@xxxxxxxxxx>
 - *Date:* 15 May 2007 18:01:55 -0700
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On May 15, 4:06 pm, Gib Bogle <b...@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote:

Protoman wrote:

How do I solve this system of ODEs?

$$\begin{aligned}y' + 2y &= 2x \\ 2y' + y &= 4x\end{aligned}$$

This is not a system of ODEs, it is two separate 1st order ODEs, with two separate solutions. A system of ODEs has the same number of independent variables as the number of 1st order ODEs. You have only one independent variable, y .

Go back and look at where you got the equations from, your mistake is probably there.

OK, here's the right equations;

$$\begin{aligned}(y' + z') + 2(y + z) &= 2x \\ 2(y' + z') + (y + z) &= 4x\end{aligned}$$

Ok, now how do I solve this? Eliminate one the independant variables?