## Subject: Coupled non linear first order equation Posted by say\_cheese74 on Tue, 15 Mar 2016 22:07:01 GMT

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I have a system of (momentum) equations in cylindrical coordinates: (r,theta,phi)

rho\*(dv/dt+(v.del)v=A(r,theta,phi)

where the velocity v(r,theta,phi) and A are vectors and dv/dt is the partial derivative wrt time. del is the gradient.

I am trying to find the steady state solution to the equation (v.del)v=A.

I have tried different simple methods but nothing converges. Any suggestions.

Thanks Jay

Subject: Re: Coupled non linear first order equation Posted by Craig Markwardt on Wed, 16 Mar 2016 17:24:29 GMT View Forum Message <> Reply to Message

On Tuesday, March 15, 2016 at 6:07:03 PM UTC-4, say\_cheese74 wrote:

- > I have a system of (momentum) equations in cylindrical coordinates:
- > (r,theta,phi)

>

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>

- > I am trying to find the steady state solution to the equation
- > (v.del)v=A.

Obvious question: did you try Runge Kutta (IDL's RK4?).

Craig