
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)

$$\rho \cdot (dv/dt + (v \cdot \nabla)v) = A(r, \theta, \phi)$$

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

I am trying to find the steady state solution to the equation
 $(v \cdot \nabla)v = A$.

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

Thanks
Jay
