Equations

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The values are a list

$$\frac{\partial}{\partial t}\rho_{x,y,t} = -\frac{\partial}{\partial x}\rho u_{x,y,t} - \frac{\partial}{\partial y}\rho v_{x,y,t} \tag{1}$$

$$\begin{aligned}\frac{\partial}{\partial t}\rho u_{x,y,t} = &\left(\frac{4}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} - \frac{2}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}\mu_{x,y,t}\\ &+\left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}\mu_{x,y,t}\\ &+\left(\frac{4}{3}\cdot\frac{\partial^2}{\partial x^2}u_{x,y,t} - \frac{2}{3}\cdot\frac{\partial^2}{\partial x\partial y}v_{x,y,t}\right)\cdot\mu_{x,y,t}\\ &+\left(\frac{\partial^2}{\partial y^2}u_{x,y,t} + \frac{\partial^2}{\partial x\partial y}v_{x,y,t}\right)\cdot\mu_{x,y,t}\\ &-\frac{\partial}{\partial y}\left(\rho u_{x,y,t}\cdot v_{x,y,t}\right) - \frac{\partial}{\partial x}\left(p_{x,y,t} + \rho u_{x,y,t}\cdot u_{x,y,t}\right)\end{aligned} \tag{2}$$

$$\begin{aligned}\frac{\partial}{\partial t}\rho v_{x,y,t} = &\left(-\frac{2}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} + \frac{4}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}\mu_{x,y,t}\\ &+\left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}\mu_{x,y,t}\\ &+\left(-\frac{2}{3}\cdot\frac{\partial^2}{\partial x\partial y}u_{x,y,t} + \frac{4}{3}\cdot\frac{\partial^2}{\partial y^2}v_{x,y,t}\right)\cdot\mu_{x,y,t}\\ &+\left(\frac{\partial^2}{\partial x\partial y}u_{x,y,t} + \frac{\partial^2}{\partial x^2}v_{x,y,t}\right)\cdot\mu_{x,y,t}\\ &-\frac{\partial}{\partial x}\left(\rho v_{x,y,t}\cdot u_{x,y,t}\right) - \frac{\partial}{\partial y}\left(p_{x,y,t} + \rho v_{x,y,t}\cdot v_{x,y,t}\right)\end{aligned} \tag{3}$$

$$
\begin{aligned}
\frac{\partial}{\partial t}\rho E_{x,y,t} = & \left(-\frac{2}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} + \frac{4}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}\mu_{x,y,t}\,.\,v_{x,y,t} \\
& + \left(-\frac{2}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} + \frac{4}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}v_{x,y,t}\,.\,\mu_{x,y,t} \\
& + \left(\frac{4}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} - \frac{2}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}\mu_{x,y,t}\,.\,u_{x,y,t} \\
& + \left(\frac{4}{3}\cdot\frac{\partial}{\partial x}u_{x,y,t} - \frac{2}{3}\cdot\frac{\partial}{\partial y}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}u_{x,y,t}\,.\,\mu_{x,y,t} \\
& + \left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}\mu_{x,y,t}\,.\,v_{x,y,t} \\
& + \left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}\mu_{x,y,t}\,.\,u_{x,y,t} \\
& + \left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial y}u_{x,y,t}\,.\,\mu_{x,y,t} \\
& + \left(\frac{\partial}{\partial y}u_{x,y,t} + \frac{\partial}{\partial x}v_{x,y,t}\right)\cdot\frac{\partial}{\partial x}v_{x,y,t}\,.\,\mu_{x,y,t} \\
& + \left(\frac{4}{3}\cdot\frac{\partial^2}{\partial x^2}u_{x,y,t} - \frac{2}{3}\cdot\frac{\partial^2}{\partial x\partial y}v_{x,y,t}\right)\,.\,\mu_{x,y,t}\,.\,u_{x,y,t} \\
& + \left(-\frac{2}{3}\cdot\frac{\partial^2}{\partial x\partial y}u_{x,y,t} + \frac{4}{3}\cdot\frac{\partial^2}{\partial y^2}v_{x,y,t}\right)\,.\,\mu_{x,y,t}\,.\,v_{x,y,t} \\
& + \left(\frac{\partial^2}{\partial x\partial y}u_{x,y,t} + \frac{\partial^2}{\partial x^2}v_{x,y,t}\right)\,.\,\mu_{x,y,t}\,.\,v_{x,y,t} \\
& + \left(\frac{\partial^2}{\partial y^2}u_{x,y,t} + \frac{\partial^2}{\partial x\partial y}v_{x,y,t}\right)\,.\,\mu_{x,y,t}\,.\,u_{x,y,t} \\
& - \frac{\partial}{\partial x}\left(\left(p_{x,y,t} + \rho E_{x,y,t}\right)\,.\,u_{x,y,t}\right) - \frac{\partial}{\partial y}\left(\left(p_{x,y,t} + \rho E_{x,y,t}\right)\,.\,v_{x,y,t}\right) \\
& + \frac{\partial}{\partial x}T_{x,y,t}\cdot\frac{\partial}{\partial x}\mu_{x,y,t}\,.\,\left(Pr\,.\,Re\,.\,Minf^2\,.\,(\gamma-1)\right)^{-1} \\
& + \frac{\partial}{\partial y}T_{x,y,t}\cdot\frac{\partial}{\partial y}\mu_{x,y,t}\,.\,\left(Pr\,.\,Re\,.\,Minf^2\,.\,(\gamma-1)\right)^{-1} \\
& + \frac{\partial^2}{\partial x^2}T_{x,y,t}\,.\,\mu_{x,y,t}\,.\,\left(Pr\,.\,Re\,.\,Minf^2\,.\,(\gamma-1)\right)^{-1} \\
& + \frac{\partial^2}{\partial y^2}T_{x,y,t}\,.\,\mu_{x,y,t}\,.\,\left(Pr\,.\,Re\,.\,Minf^2\,.\,(\gamma-1)\right)^{-1}
\end{aligned}
\tag{4}
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The list ends hereThe values are a list

$$u = \frac{\rho u}{\rho} \tag{5}$$

$$v = \frac{\rho v}{\rho} \tag{6}$$

$$p = \left(\rho E - \frac{(u)^2}{2} - \frac{(v)^2}{2} \right) . (\gamma - 1) \tag{7}$$

$$T = \frac{\gamma . p}{\rho} . Minf^2 \tag{8}$$

$$\mu = (T)^{\frac{2}{3}} \tag{9}$$

The list ends here