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$$U_{ij}^{l+1} = v^2\left[U^l_{i+1j} - 2U^l_{i-ij} + \frac{\Delta\rho}{\rho[i]}\cdot\left(U^l_{ij} - U^l_{i-1j}\right) + \left(\frac{\lambda^2}{\rho[i]}\right)\cdot\left(U^l_{ij+1} - 2U^l_{ij} + U^l_{ij-1}\right)\right] + 2U^l_{ij} - U^{l-1}_{ij}$$

$$\lambda = \frac{\Delta\rho}{\Delta\phi} \qquad v = \frac{\alpha\Delta t}{\Delta\rho}$$

$$\frac{\partial\rho}{\partial x} = \frac{x}{\sqrt{x^2+y^2}} = \frac{\rho\cos\phi}{\rho} = \cos\phi$$

$$= \frac{\rho\,\mathrm{sen}\,\phi}{\rho} = \mathrm{sen}\,\phi$$

$$\frac{\partial\phi}{\partial x} = -\frac{y}{x^2+y^2} = -\frac{\rho\,\mathrm{sen}\,\phi}{\rho^2} = -\frac{\mathrm{sen}\,\phi}{\rho}$$

$$\frac{\partial\phi}{\partial y} = \frac{x}{x^2+y^2} = \frac{\rho\cos\phi}{\rho^2} = \frac{\cos\phi}{\rho}$$

$$\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial\rho^2}\cos^2\phi + \frac{\partial^2 u}{\partial\phi^2}\frac{\mathrm{sen}^2\phi}{\rho^2} - \frac{\partial^2 u}{\partial\rho\partial\phi}\frac{\mathrm{sen}(2\phi)}{\rho}$$

$$+ \frac{\partial u}{\partial\phi}\frac{\mathrm{sen}(2\phi)}{\rho^2} + \frac{\partial u}{\partial\rho}\frac{\mathrm{sen}^2\phi}{\rho}$$