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iv) $R^1_{212} = \frac{\partial \Gamma^1_{22}}{\partial \xi^1} - \frac{\partial \Gamma^1_{21}}{\partial \xi^2} + \Gamma^1_{1e}\Gamma^e_{22} - \Gamma^1_{2e}\Gamma^e_{21}$

$= \frac{\partial \Gamma^1_{22}}{\partial \xi^1} - \frac{\partial \Gamma^1_{21}}{\partial \xi^2} + \Gamma^1_{11}\Gamma^1_{22} + \Gamma^1_{12}\Gamma^2_{22} - \Gamma^1_{21}\Gamma^1_{21} - \Gamma^1_{22}\Gamma^2_{21}$

$= \frac{\partial}{\partial \xi^1}\left(-G\frac{\partial G}{\partial \xi^1}\right) - \frac{\partial}{\partial \xi^2}(0) + 0 + 0 + 0 -$

$- \left(-G\frac{\partial G}{\partial \xi^1}\right)\frac{1}{G}\frac{\partial G}{\partial \xi^1}$

$= -\left(\frac{\partial G}{\partial \xi^1}\right)^2 - G\frac{\partial^2 G}{\partial \xi^{1\,2}} + \left(\frac{\partial G}{\partial \xi^1}\right)^2 = -G\frac{\partial^2 G}{\partial \xi^{1\,2}}$

By Q 29 ch 9 R^1_{212} $R_{1212} = K \det(M)$
where $M = \begin{bmatrix} 1 & 0 \\ 0 & G^2 \end{bmatrix}$ is the
matrix representing the Metric
then $K = \frac{1}{(1 \cdot G^2)}\left(-G\frac{\partial^2 G}{\partial \xi^{1\,2}}\right)$

$= -\frac{1}{G}\frac{\partial^2 G}{\partial \xi^{1\,2}}$

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