93(19): The θ Component of $\underline{I}$

In this case:

$$R^2{}_{1}{}^{21} = g^{22} g^{11} R_{2121} = g^{22} g^{11} g_{11} R^{1}{}_{212}$$

$$= g^{22} R^{1}{}_{212}$$

$$= -\frac{x}{2r^2} \qquad \text{— (1)}$$

The second component is:

$$R^2{}_{3}{}^{23} = g^{22} g^{33} R_{2323} = g^{22} g^{33} g_{22} R^{2}{}_{323}$$

$$= g^{33} R^{2}{}_{323}$$

$$= \frac{x}{r^2} \qquad \text{— (2)}$$

The third component is:

$$R^2{}_{0}{}^{20} = g^{22} g^{00} R^{2}{}_{020} = (g^{22})^2 g^{00} R_{0202}$$

$$= (g^{22})^2 g^{00} g_{00} R^{0}{}_{202}$$

$$= (g^{22})^2 R^{0}{}_{202} \qquad \text{— (3)}$$

$$= -\frac{x}{2r^4} \qquad \text{— (3a)}$$

So:

$$R^2{}_{1}{}^{21} + R^2{}_{3}{}^{23} + r^2 R^2{}_{0}{}^{20} = 0 \qquad \text{— (4)}$$

and

$$\boxed{J_\theta = 0} \qquad \text{— (5)}$$