

Out[•]//TableForm=

$$\Gamma[1, 2, 2] \quad -r$$

$$\Gamma[1, 3, 3] \quad -r \sin[\theta]^2$$

$$\Gamma[2, 2, 1] \quad \frac{1}{r}$$

$$\Gamma[2, 3, 3] \quad -\cos[\theta] \sin[\theta]$$

$$\Gamma[3, 3, 1] \quad \frac{1}{r}$$

$$\Gamma[3, 3, 2] \quad \cot[\theta]$$