```
P = {4 * r * Cos[θ]/(r^2 + 4), 4 * r * Sin[θ]/(r^2 + 4), 2 * r^2/(r^2 + 4)}
```

$$\left\{\frac{4\,r\,\text{Cos}[\theta]}{4+r^2},\ \frac{4\,r\,\text{Sin}[\theta]}{4+r^2},\ \frac{2\,r^2}{4+r^2}\right\}$$

```
P_r = D[P, r]
```

$$\left\{-\frac{8\,r^2\,\text{Cos}[\theta]}{\left(4+r^2\right)^2}+\frac{4\,\text{Cos}[\theta]}{4+r^2},\ -\frac{8\,r^2\,\text{Sin}[\theta]}{\left(4+r^2\right)^2}+\frac{4\,\text{Sin}[\theta]}{4+r^2},\ -\frac{4\,r^3}{\left(4+r^2\right)^2}+\frac{4\,r}{4+r^2}\right\}$$

```
P_θ = D[P, θ]
```

$$\left\{-\frac{4\,r\,\text{Sin}[\theta]}{4+r^2},\ \frac{4\,r\,\text{Cos}[\theta]}{4+r^2},\ 0\right\}$$

```
E_E = FullSimplify[Dot[P_r, P_r]]
```

$$\frac{16}{\left(4+r^2\right)^2}$$

```
F = FullSimplify[Dot[P_r, P_θ]]
```

$$0$$

```
G = FullSimplify[Dot[P_θ, P_θ]]
```

$$\frac{16\,r^2}{\left(4+r^2\right)^2}$$

```
K = FullSimplify[ -1/Sqrt[E_E * G] * (D[(D[E_E, θ])/Sqrt[E_E * G], θ] + D[(D[G, r])/Sqrt[E_E * G], r])]
```

$$2$$