

$$X(u, v) = (\cos u \sin v, \sin u \sin v, \cos v)$$

$$X_1 = (-\sin u \sin v, \cos u \sin v, 0)$$

$$X_2 = (\cos u \cos v, \sin u \cos v, -\sin v)$$

$$\begin{aligned} \Omega &= X_1 \times X_2 = (-\cos u \sin^2 v, -\sin u \sin^2 v, -\sin v \cos v) \\ &= -\sin v \cdot X \end{aligned}$$

Now  $\sin v > 0$  if  $0 < v < \pi$ , so

$$N = -X = (-\cos u \sin v, -\sin u \sin v, -\cos v)$$

FFF:  $E = \sin^2 v \quad G = 1$

$$F = 0$$

$$EG - F^2 = \sin^2 v$$

SFF:

$$X_{11} = \cancel{\sqrt{H} \sin u \cos v}, u (-\cos u \sin v, -\sin u \sin v, 0)$$

$$X_{12} = (-\sin u \cos v, \cos u \cos v, 0)$$

$$X_{22} = (-\cos u \sin v, -\sin u \sin v, -\cos v)$$

$$e = N \cdot X_{11} = \sin^2 v$$

$$f = 0 = N \cdot X_{12}$$

$$g = N \cdot X_{22} = 1.$$

$$eg - f^2 = \sin^2 v$$

Hence

$$K = 1$$

check

$$H = \frac{1}{2}$$