

$$S_1: x \log z = y^2 + 1 = 0$$

$$S_2: x^2 y - 2 + z = 0$$

$$\hat{n}_1 = \log z \hat{i} + \hat{j}(-2y) + \hat{k}\left(\frac{2x}{z}\right)$$

$$\hat{n}_2 = 2xy \hat{i} + x^2 \hat{j} + 1 \hat{k}$$

at (1, 1, 1)

$$\hat{n}_1 = -2\hat{j} + \hat{k}$$

$$\hat{n}_2 = 2\hat{i} + \hat{j} + \hat{k}$$

$$\cos \theta = \left| \frac{\hat{n}_1 \cdot \hat{n}_2}{|\hat{n}_1| \cdot |\hat{n}_2|} \right|$$

$$\cos \theta = \frac{-2 + 1}{\sqrt{5} \times \sqrt{6}}$$

$$\theta = \cos^{-1}\left(-\frac{1}{\sqrt{30}}\right)$$

or $\theta = \cos^{-1}\left(\frac{1}{\sqrt{30}}\right)$