

$$Z = \sin x - \cos y$$

$$\left. \begin{aligned} Z_x = \cos x &= 0 \\ Z_y = \sin y &= 0 \end{aligned} \right\} \begin{aligned} x &= \frac{\pi}{2}, \frac{3}{2}\pi \\ y &= \pi \end{aligned}$$

極値をとる点 は  $(\frac{\pi}{2}, \pi)$ ,  $(\frac{3}{2}\pi, \pi)$

$$\begin{aligned} Z_{xx} &= -\sin x \\ Z_{yy} &= \cos y \\ Z_{xy} &= 0 \end{aligned} \quad H = \begin{vmatrix} -\sin x & 0 \\ 0 & \cos y \end{vmatrix} = -\sin x \cos y$$

$$\left[ \begin{aligned} &(\frac{\pi}{2}, \pi) \text{ のとき, } H = -\sin \frac{\pi}{2} \cos \pi = 1 > 0 \\ &Z_{xx} = -\sin \frac{\pi}{2} = -1 < 0 \text{ より 極大値をとる.} \\ &f(\frac{\pi}{2}, \pi) = \sin \frac{\pi}{2} - \cos \pi = 1 - (-1) = 2 \end{aligned} \right.$$

$$\left[ \begin{aligned} &(\frac{3}{2}\pi, \pi) \text{ のとき, } H = -\sin \frac{3}{2}\pi \cos \pi = -(-1) \cdot (-1) = -1 < 0 \\ &\text{極値をとらない} \end{aligned} \right.$$