

③ 続き

$$(3) \int_{|z|=\frac{5}{2}\pi} f(z) dz$$

$|z|=\frac{5}{2}\pi$ 内 1-板子 特異点 は $0, \pi, -\pi, 2\pi, -2\pi$

\therefore

$$\int_{|z|=\frac{5}{2}\pi} f(z) dz = 2\pi i \left(\text{Res}[0] + \text{Res}[\pi] + \text{Res}[-\pi] + \text{Res}[2\pi] + \text{Res}[-2\pi] \right)$$

$$= 2\pi i (0 + 1 + 1 + 1 + 1)$$

$$= 8\pi i$$