

Example 4.2

Q: $w = w_1$ constant

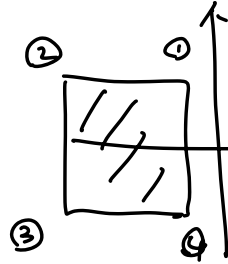
$w = w_2$

$$\sigma = -\sigma_1$$

$$\sigma = -\sigma_2$$

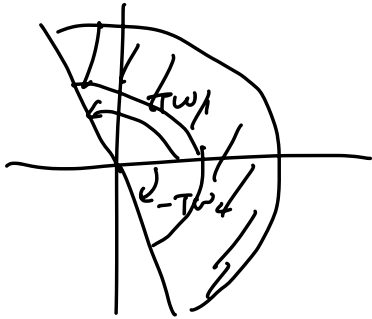
→ Z plane

Solution



(12) $r = e^{\sigma T}$, $\sigma \in (-\sigma_1, -\sigma_2)$

$$T = \frac{2\pi}{w_1} = \text{constant}$$



z ?
→ 考 w 不变的 sigma 不变
sigma 不变 → 竖线
w 变 → 圆弧

$$\begin{aligned} z &= e^{sT} \\ &= e^{(\sigma + jw)T} \\ &= e^{\sigma T} + e^{jwT} \\ &= e^{-\sigma T} \angle wT \end{aligned}$$

$\theta = Tw_1 = \text{constant}$
w 不变 → 射线