2021年3月4日 3:41

1、

$$\sin z = \sin x \cosh y + i \cos x \sinh y$$

$$= \sin x \cdot \frac{1}{2}(e^{y}+e^{-y}) + i \cos x \cdot \frac{1}{2} \cdot (e^{y}-e^{-y})$$

$$= 100$$

$\therefore i \cos x = 0 \quad \cos x = 0$

$\because \frac{1}{2}(e^{y}+e^{-y}) > 0$

$\therefore \sin x > 0$

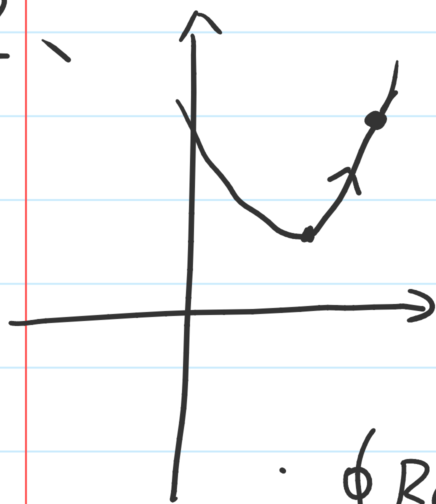
$\therefore x = \frac{\pi}{2} + 2k\pi$

$\therefore \frac{1}{2}(e^{y}+e^{-y}) = \cosh y = 100$

$\therefore y = \cosh^{-1}(100)$

$\therefore z = \frac{\pi}{2} + 2k\pi + i \cdot \cosh^{-1}(100)$

2、



assume $x = 1+t$

$$Z(t) = 1+t + i\cdot\left(1+\frac{1}{2}t^2\right) \quad (0 \le t \le 2)$$

$$Z'(t) = 1+t\cdot i$$

$$\therefore \oint_C Re(z)dz = \int_0^2 (1+t)\cdot(1+t\cdot i)\,dt$$

$$= \int_0^2 1+ti+t+t^2\cdot i \, dt$$

$$= t + \frac{t^2}{2}i + \frac{t^2}{2} + \frac{t^3}{3}i \Big|_0^2$$

$$= 4 + \frac{14}{3}i$$