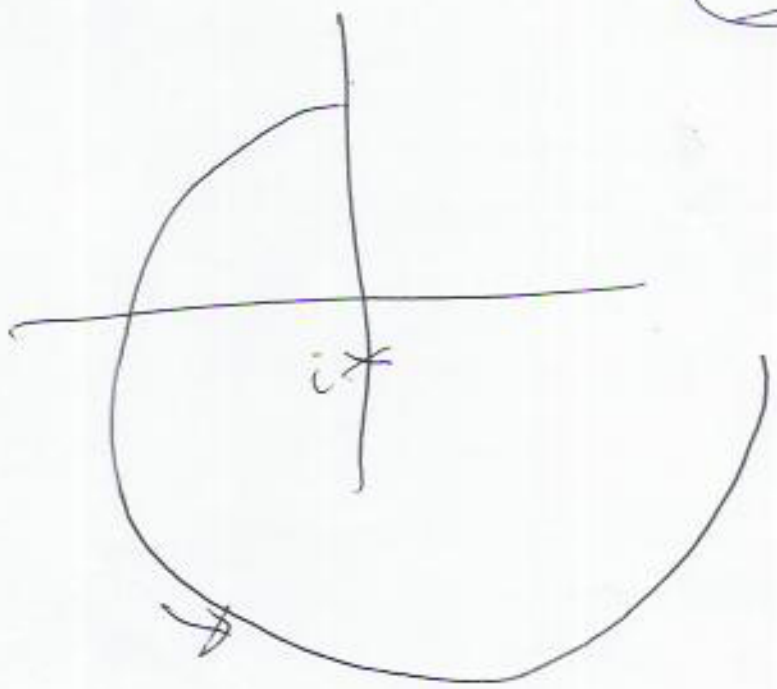
$T(-2+i)$:



iv) $f(\Gamma) = -2+i-2i(1+i+\sqrt{2}e^{it})$

$= -\cancel{2}+i-2i+\cancel{2}-2i\sqrt{2}\,e^{it}$

$= -2i-2i\sqrt{2}\,e^{it}$

as t goes from $-\pi$ to $\pi/4$

$t' = \frac{4}{5\pi}(t+\pi)$ goes from 0 to 1

$\therefore\ t = \frac{5\pi}{4}t' - \pi \qquad t \in [0,1]$

$f(\Gamma) = -2i-2i\sqrt{2}\,e^{i\left(\frac{5\pi}{4}t-\pi\right)}$

$t \in [0,1]$