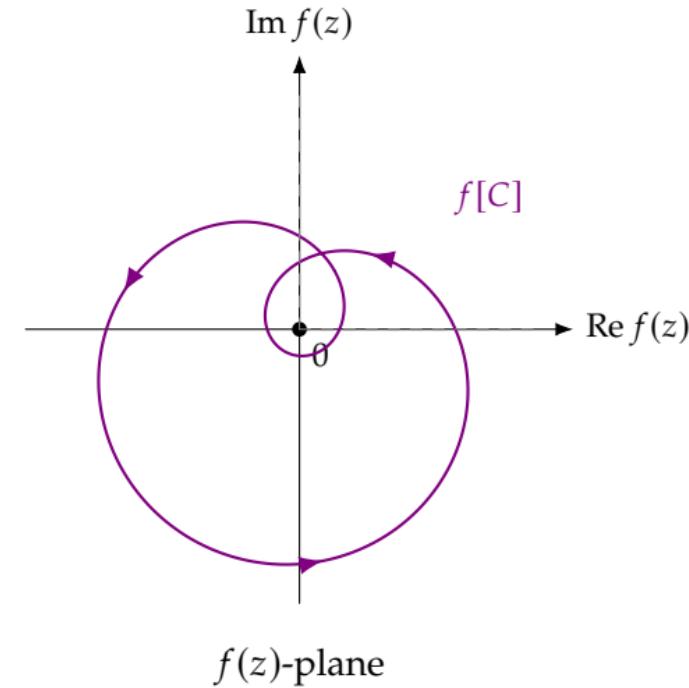


$$f(z) = (z - p)^2$$

$$d(\log f) = \frac{f'(z)}{f(z)} dz = \frac{df}{f}$$

$$\Rightarrow \frac{df}{f} = \frac{2(z - p)}{(z - p)^2} dz = \frac{2}{z - p} dz$$



z -plane

$f(z)$ -plane

[Degree]

$$\oint_C d(\log f) = \oint_C \frac{df}{f} = 2 \oint_C \frac{1}{z - p} dz$$

$$\xrightarrow[z=p+e^{it}]{t \in [0, 2\pi]} 2 \oint_{[0, 2\pi]} \left(e^{-it} \right) \left(ie^{it} dt \right) = 2i \oint_{[0, 2\pi]} 1 dt = 2\pi i \cdot 2$$