



[Degree]

$$\begin{aligned}
 \oint_C d(\log f) &= \oint_C \frac{df}{f} = -3 \oint_C \frac{1}{z - p} dz \\
 \xrightarrow[z=p+e^{it}]{t \in [0, 2\pi]} &-3 \oint_{[0, 2\pi]} \left(e^{-it} \right) \left(ie^{it} dt \right) = -3i \oint_{[0, 2\pi]} 1 dt = 2\pi i \cdot (-3)
 \end{aligned}$$