

$$\text{Log}(-2) = \left\{ \text{Log } z = \ln|z| + i \arg z + i 2k\pi \right\}$$

$$z = -2 \quad |z| = 2 \quad \begin{array}{l} \cos k = -1 \\ \sin k = 0 \end{array} \rightarrow k = \pi$$

$$\text{Log}(-2) = \ln 2 + i\pi + i 2k\pi$$