$f\left(e^{i\theta}\right) = e^{\frac{i\theta}{2}}$
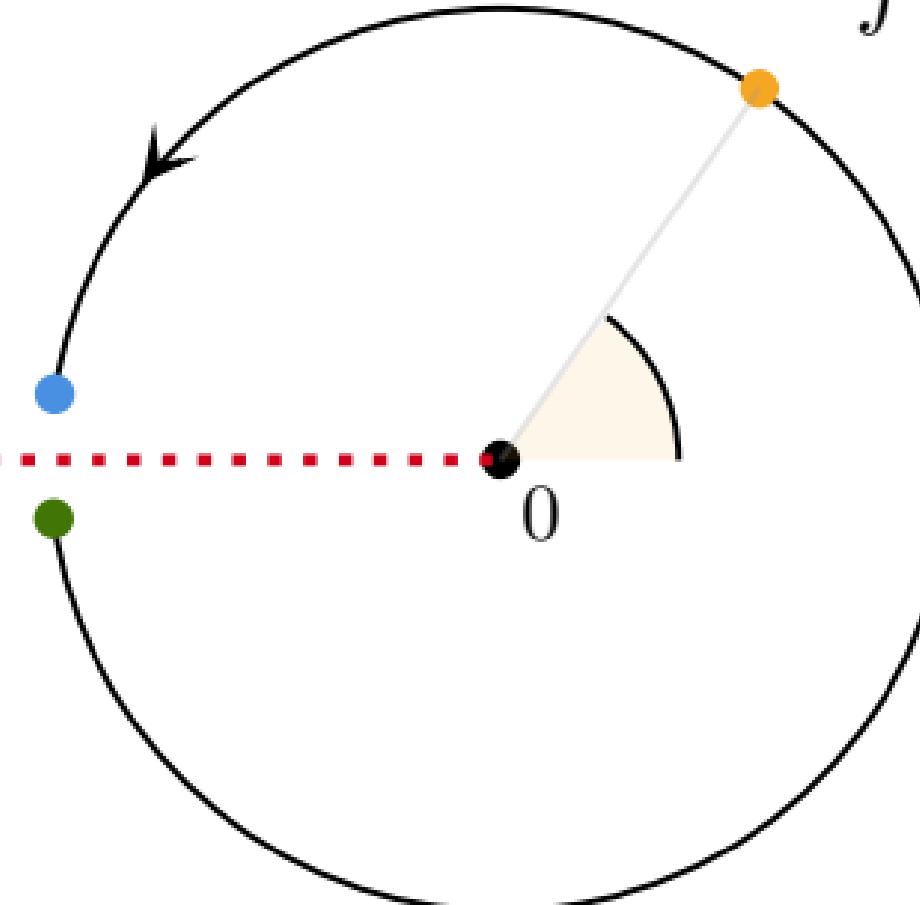
$f\left(e^{i\pi}\right) = e^{\frac{i\pi}{2}}$

$f\left(e^{-i\pi}\right) = e^{-\frac{i\pi}{2}}$

0

$f(1) = 1$