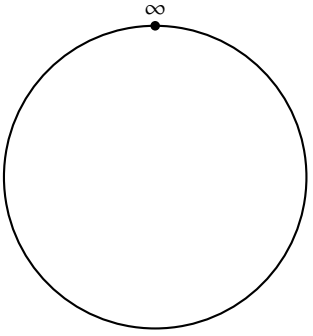
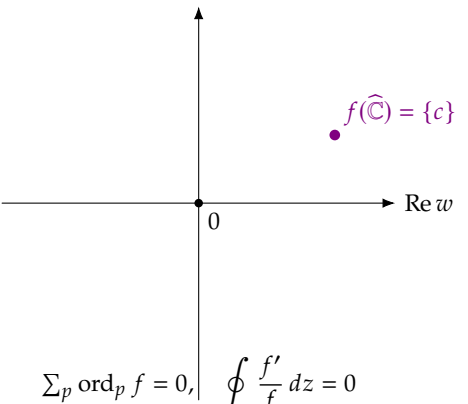
Riemann sphere $\widehat{\mathbb{C}}$ (domain)



$w = f(z)$-plane (image)



$f(z) \equiv c \neq 0 \quad \Rightarrow \quad$ no zeros, no poles

$\sum_p \operatorname{ord}_p f = 0, \quad \oint \frac{f'}{f}\, dz = 0$