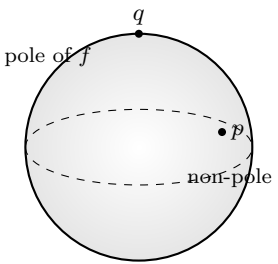
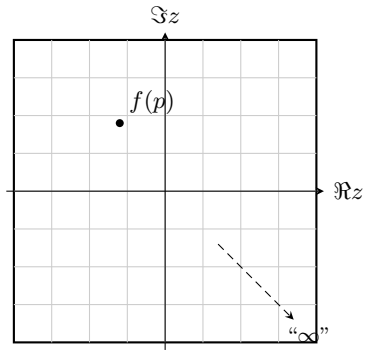
$X = \mathbb{CP}^1$

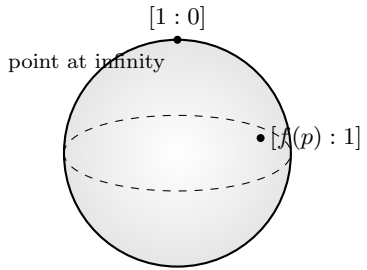


f is a rational function on $\mathbb{CP}^1$

$\mathbb{C}$



$\mathbb{CP}^1$

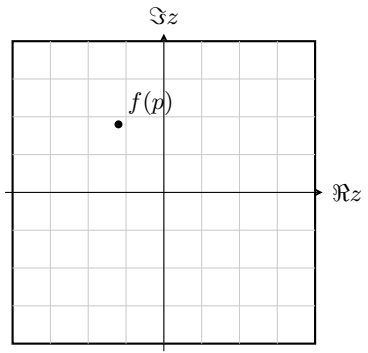


$\{[z_0 : z_1] \mid z_1 \neq 0\} \simeq \mathbb{C}$

$U_1 = \{[z_0 : z_1] \in \mathbb{CP}^1 \mid z_1 \neq 0\}$

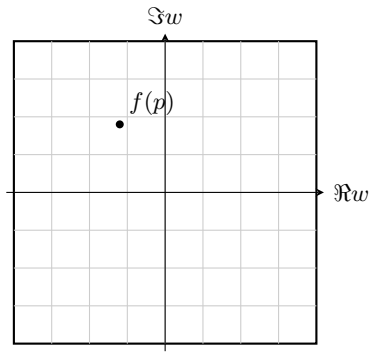
$\mathbb{C} = \mathrm{Img}(\phi_1) = \left\{ w = \dfrac{z_0}{z_1} \in \mathbb{C} \mid [z_0 : z_1] \in U_1 \right\}$

$U_1 (\simeq \mathbb{C})$



$$\phi_1 : \begin{array}{ccc} U_1 & \longrightarrow & \mathbb{C} \\ [z_0 : z_1] & \longmapsto & \dfrac{z_0}{z_1} \end{array}$$

ϕ_1 is a biholomorphism, i.e., $U_1 \simeq \mathbb{C}$



$$\phi_1^{-1} : \begin{array}{ccc} \mathbb{C} & \longrightarrow & U_1 \\ w = \dfrac{z_0}{z_1} & \longmapsto & [z_0 : z_1] \end{array}$$