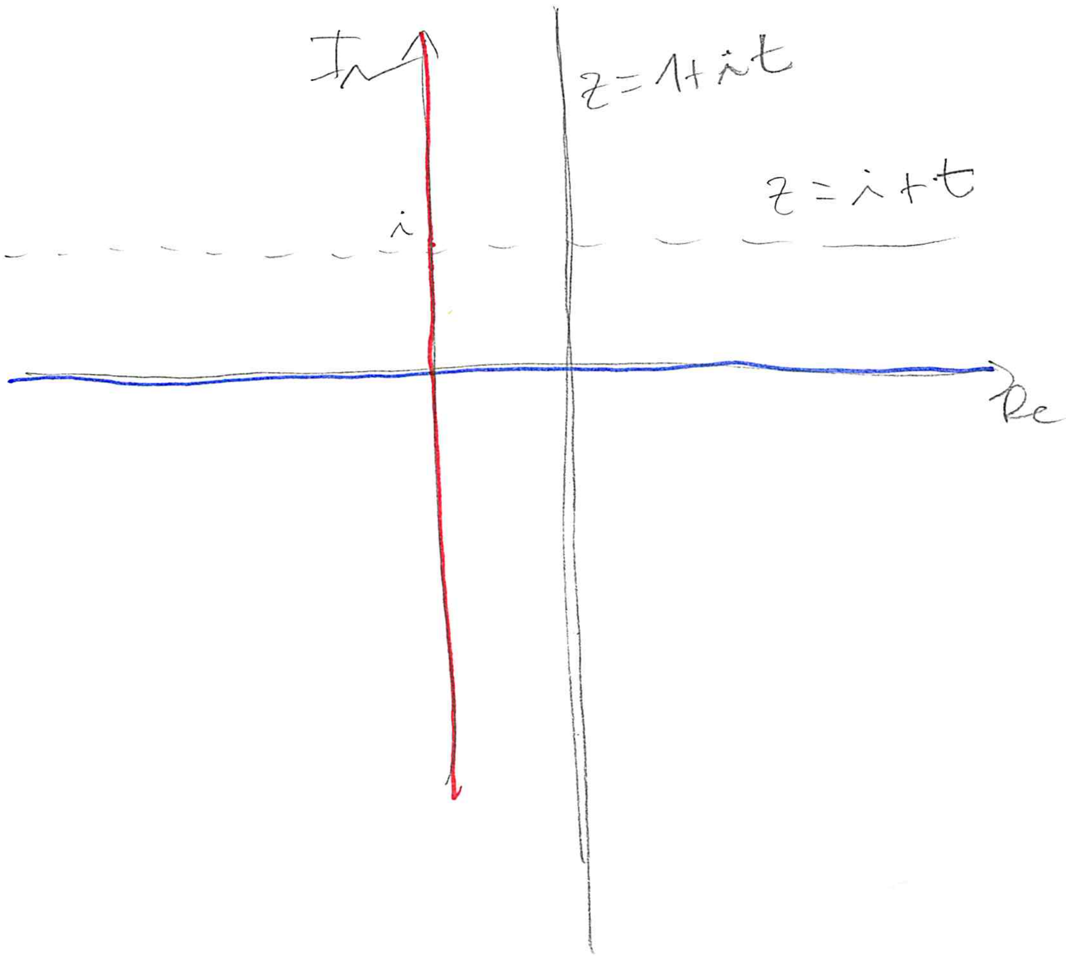
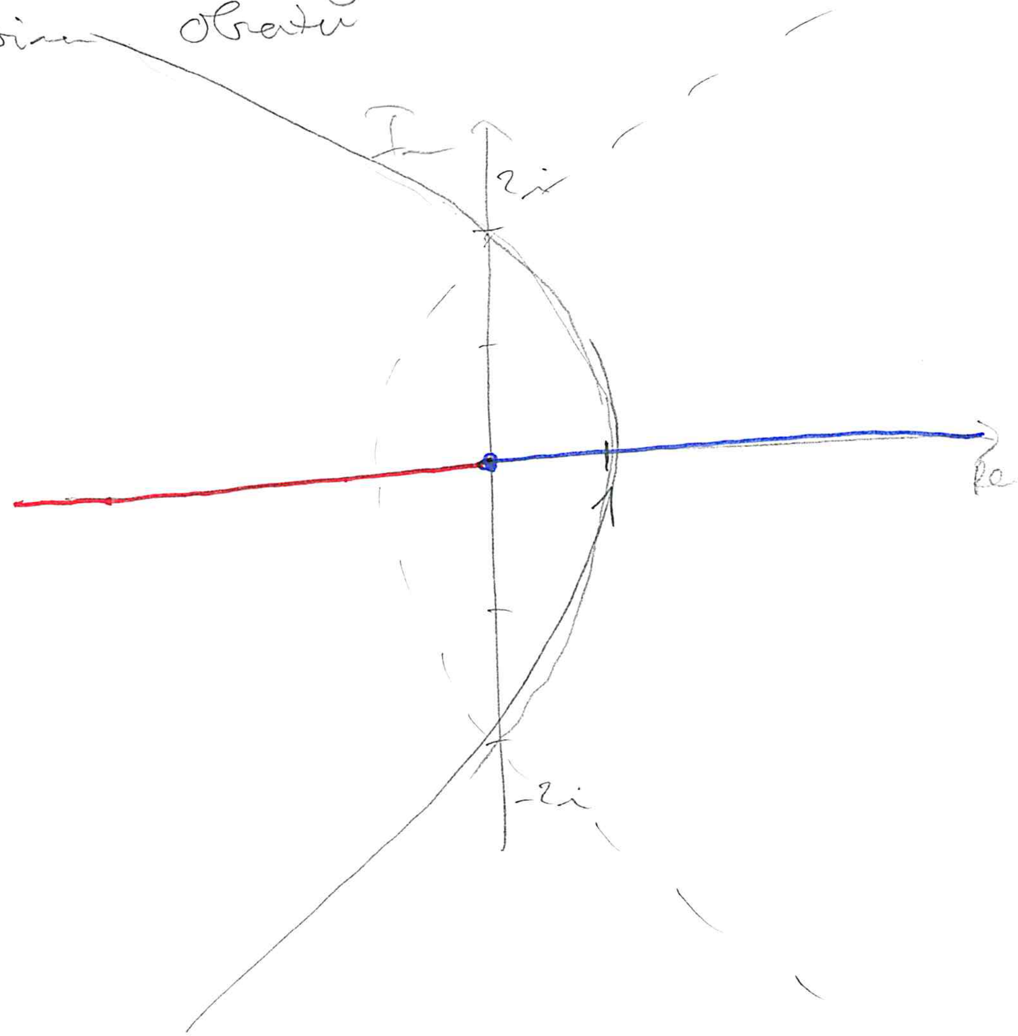
$t \mapsto z$

Rovina vzorů



Rovina obrazů



$$z^2 = (1+it)^2 = 1-t^2 + 2it$$

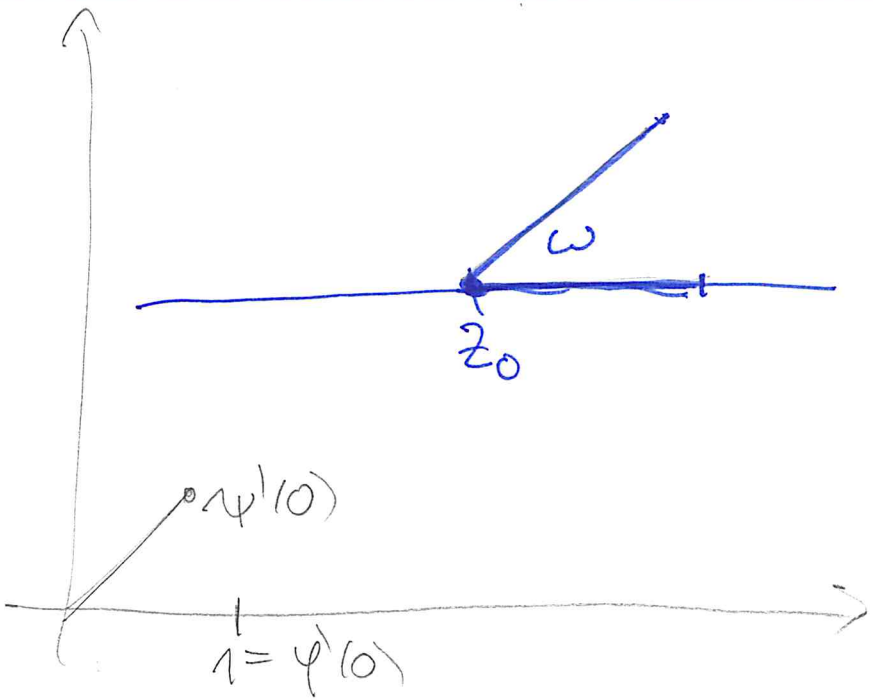
$x = 1-t^2 \quad y = 2t$

$$x = 1 - \frac{y^2}{4}$$

~~$z^2 = (1+it)^2 = 1$~~ $x=-1+t^2$ $\quad y = 2t$

$$z^2 = (i+t)^2 = -1+t^2+2it$$

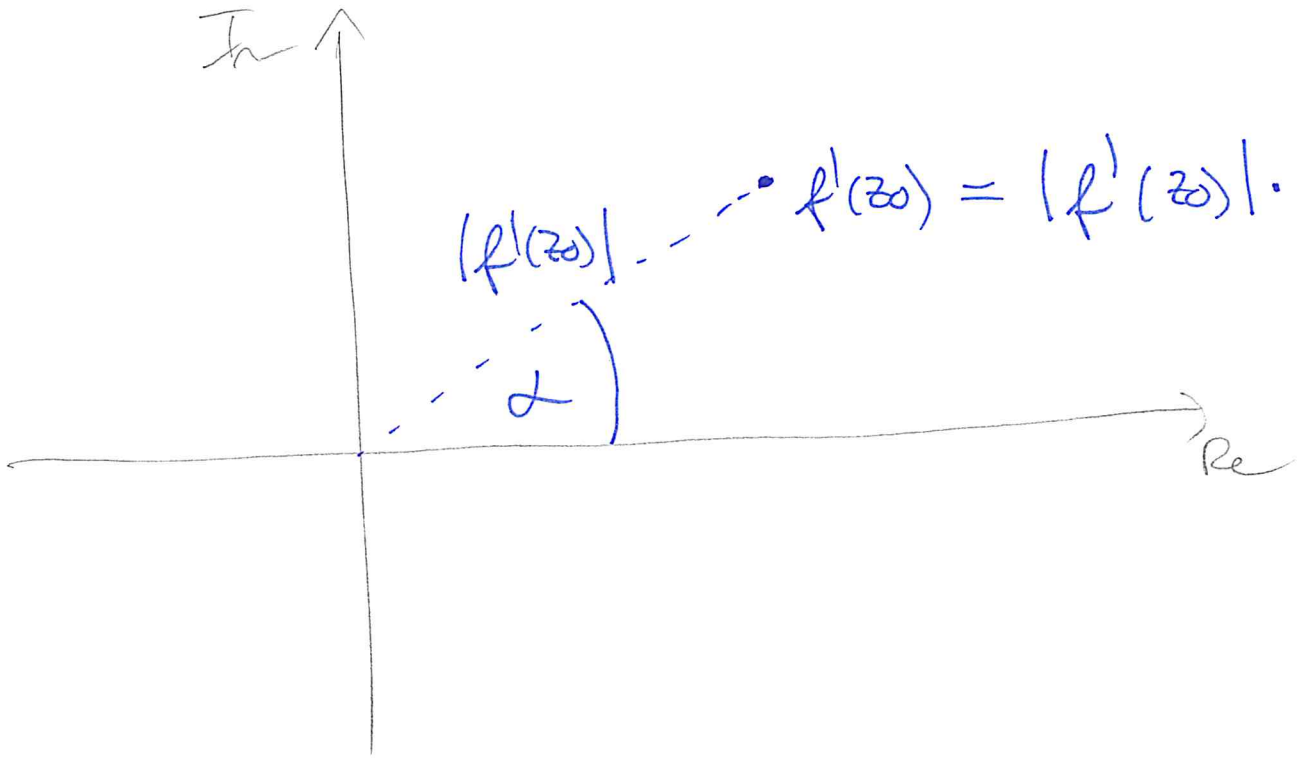
$$x = -1 + \frac{y^2}{4}$$



$\varphi: \; z = z_0 + t, \quad t \in [0, l_1]$ $\qquad \varphi'(t) = 1$

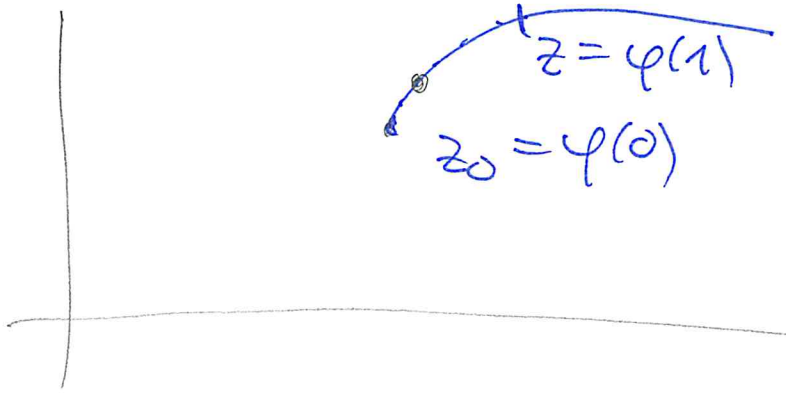
$\psi: \; z = z_0 + t(\cos\omega + i\sin\omega)$ $\qquad \psi'(t) = \cos\omega + i\sin\omega$

$t \in [0, l_2]$



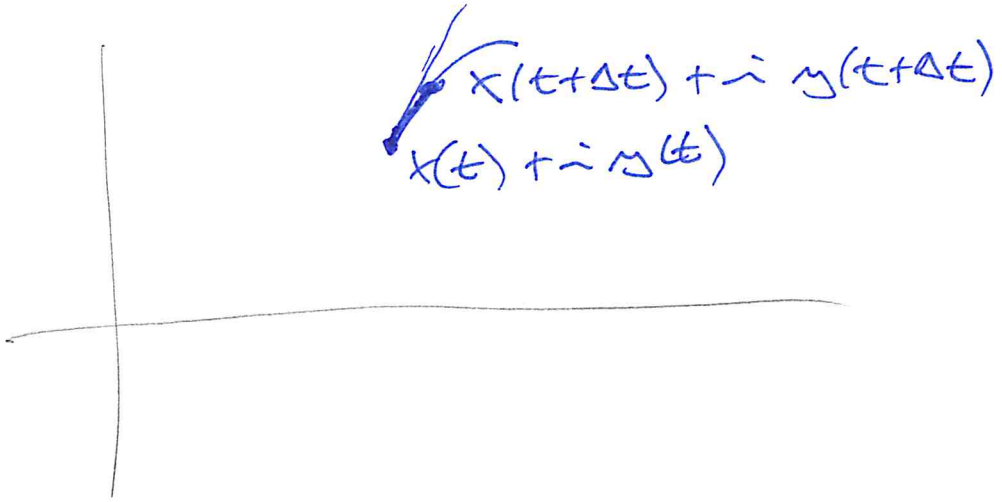
$$f'(z_0) = |f'(z_0)| \cdot \underbrace{(\cos\alpha + i\sin\alpha)}_{e^{i\alpha}}$$

$\varphi : t \mapsto z = \varphi(t) = \cancel{(x(t), y(t))}\ x(t) + i\,y(t)$



$$\varphi'(t) = x'(t) + i\,y'(t) = \lim_{\Delta t \to 0} \frac{x(t+\Delta t) + i\,y(t+\Delta t) - (x(t) + i\,y(t))}{\Delta t}$$

$$= \frac{x(t+\Delta t) - x(t) + i\,(y(t+\Delta t) - y(t))}{\Delta t}$$



f holomorfní v $\mathcal{U}(z_0)$:

$$f(z) = \underbrace{f(z_0) + f'(z_0)(z - z_0)}_{\text{lineární funkce}} + \underbrace{R_2(z)}_{\text{další členy}}$$