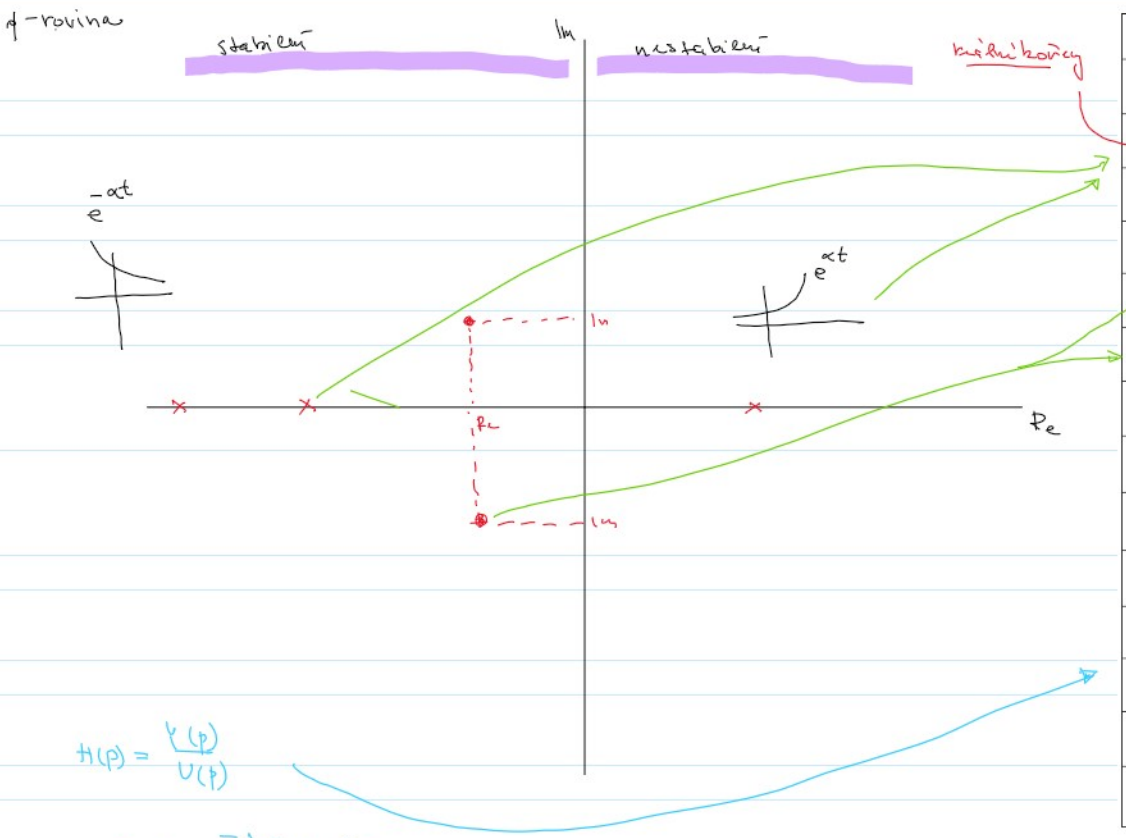


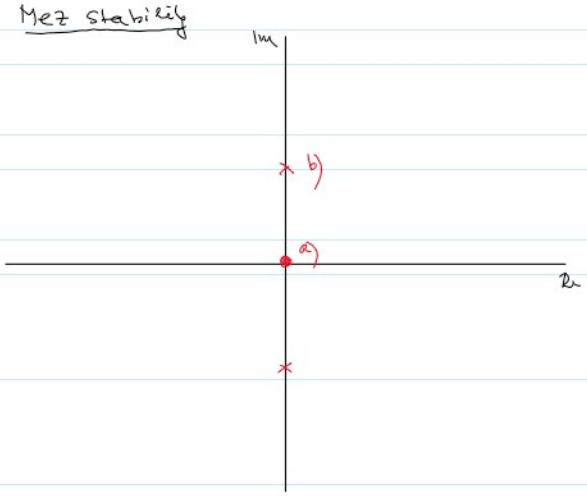
$\delta(t)$	1
$\mathbf{1}(t)$	$\frac{1}{p}$
$e^{-\alpha t}$	$\frac{1}{p+\alpha}$
$\sin \omega t$	$\frac{\omega}{p^2+\omega^2}$
$\cos \omega t$	$\frac{p}{p^2+\omega^2}$
$e^{-\alpha t} \sin \omega t$	$\frac{\omega}{(p+\alpha)^2+\omega^2}$
$e^{-\alpha t} \cos \omega t$	$\frac{p+\alpha}{(p+\alpha)^2+\omega^2}$
t^n	$\frac{n!}{p^{n+1}}$
$t^n e^{-\alpha t}$	$\frac{n!}{(p+\alpha)^{n+1}}$
$t \cos \omega t$	$\frac{p^2-\omega^2}{(p^2+\omega^2)^2}$
$t \sin \omega t$	$\frac{2\omega p}{(p^2+\omega^2)^2}$
$\sinh \varphi t$	$\frac{\varphi}{p^2-\varphi^2}$
$\cosh \varphi t$	$\frac{p}{p^2-\varphi^2}$
$t \sinh \varphi t$	$\frac{2\varphi p}{(p^2-\varphi^2)^2}$
$t \cosh \varphi t$	$\frac{p^2+\varphi^2}{(p^2-\varphi^2)^2}$

$H(p) = \frac{Y(p)}{U(p)}$

$h(t) = \mathcal{L}^{-1}\{H(p)\}$

$\lim_{t \to \infty} h(t) = ?$

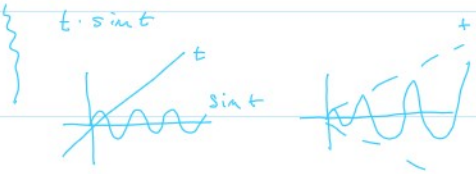
Mez stabilily



a) $H(p) = \frac{1}{p} \rightarrow h(t) = \mathbb{1}(t)$

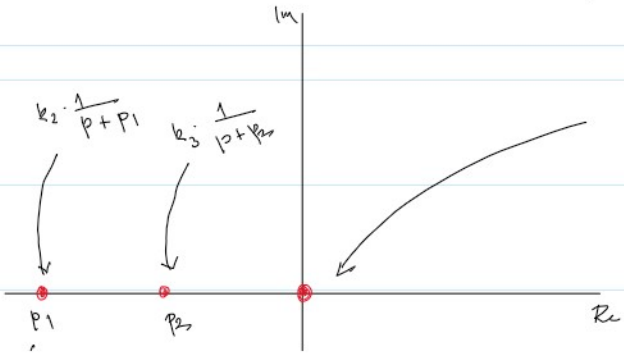
$\lim_{t \to \infty} h(t) = 1$

b) $H(p) = \frac{\omega}{p^2+\omega^2} \rightarrow h(t) =$ sin ωt / cos ωt

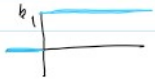


systém 3. řádu $H(p) = \frac{1}{p^3 + \alpha p^2 + \beta p + \gamma}$

a)

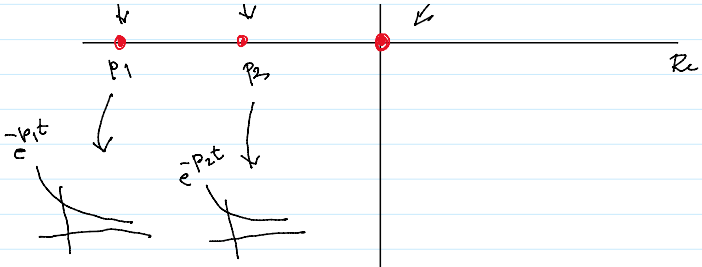


$\frac{k_1}{p} \sim k_1 \cdot \mathbb{1}(t)$



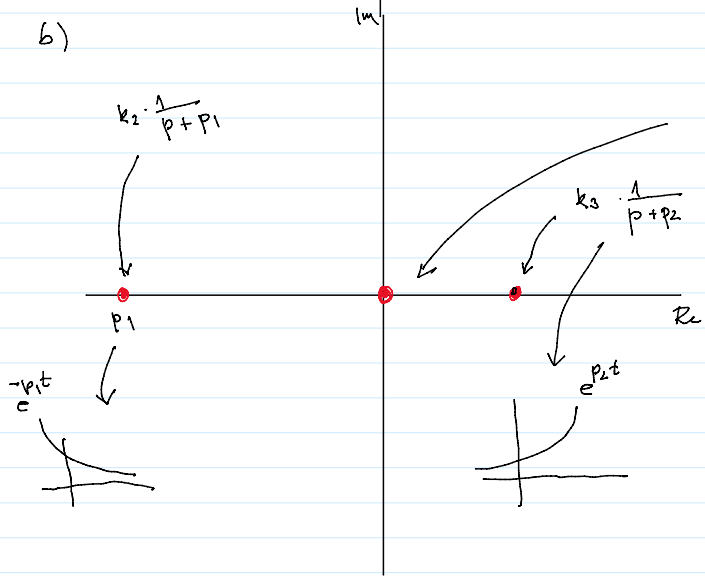
$h(t) = k_1 \mathbb{1}(t) + k_2 \cdot e^{-p_1 t} + k_3 \cdot e^{-p_2 t}$ (k_1, ∞, ∞)

$\lim_{t \to \infty} h(t) = k_1$ mez stabilily

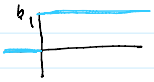


$\lim_{t \to \infty} h(t) = k_1$ mez stability

b)

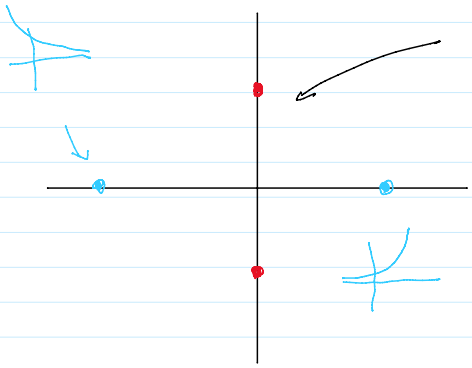


$\frac{k_1}{p} \sim k_1 \cdot \mathbb{1}(t)$



$h(t) = k_1 \mathbb{1}(t) + k_2 \cdot e^{-p_1 t} + k_3 \cdot e^{+p_2 t}$ → k_1, → ϕ, → ∞

$\lim_{t \to \infty} h(t) = \infty$ nestabilní



$H(p) = \frac{?}{p^2 + \omega^2}$ → $h(t)$ < sin t, cos t