1. $\hat{R} = \bar{R} = 100{,}80\,\Omega$ $\quad N=20 \Rightarrow$ Student-t eloszlás. $\quad s_1 = 1{,}45\,\Omega$ $\quad s' = \frac{s_1}{\sqrt{20}} = 0{,}3242\,\Omega$ (2)

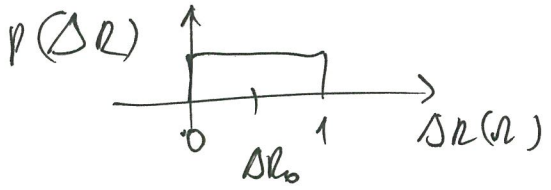
B

$\Delta R = s' \cdot \underbrace{t_{19;0{,}01}}_{2{,}538} = 0{,}8229\,\Omega$

$P[\hat{R} - \Delta R < R < \hat{R} + \Delta R] = 1-b$

$P[99{,}98\,\Omega < R < 101{,}62\,\Omega] = 98\%$ (2)

5



$E\{\Delta R\} = \Delta R_0 = 0{,}5\,\Omega \Rightarrow \quad \hat{R} = \bar{R} + \Delta R_0 = 101{,}3\,\Omega$ (1)

$\Delta R = R_* - R_i$

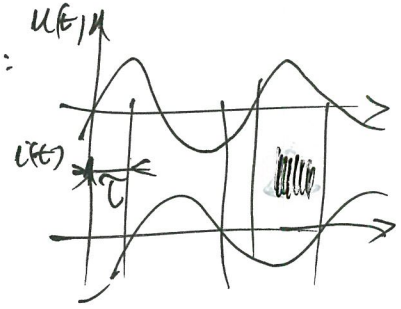
M. $G + j\omega C = |Y|[\cos\varphi + j\sin\varphi]$ $\quad \omega = 2\pi f \cong 1000\,\frac{1}{s}$ $\quad R = \frac{1}{|Y|\cos\varphi} = 20{,}01\,M\Omega$

$C = \frac{|Y|\sin\varphi}{\omega} = 2{,}000\,nF$ (2)

$\frac{\Delta R}{R} = \frac{\Delta|Z|}{|Y|} + \frac{\Delta\cos\varphi}{\cos\varphi} = \frac{\Delta|Y|}{|Y|} + \operatorname{tg}\varphi\,\Delta\varphi = 20{,}1\%$ (2)

5

Fázismérés: időintervallum-mérésre visszavezetve:



$\varphi = 2\pi\frac{\tau}{T_x} = 2\pi\,\tau\,f_x$

f_x-et ismerjük.

(1)