GGÜ 10

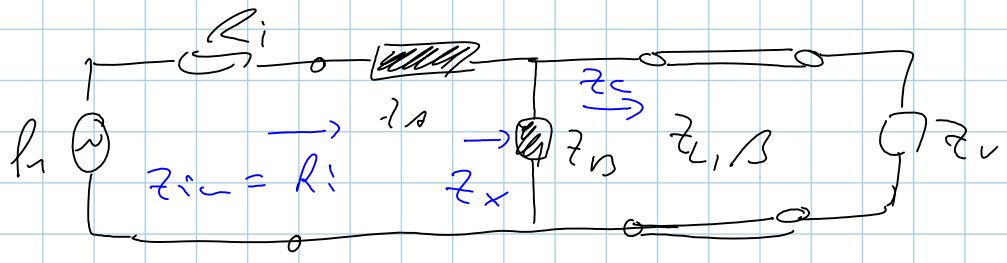
Dienstag, 21. Juni 2011
14:03

3.3.1 $\frac{l_2}{\lambda_2} = \frac{1}{4}$ (an Klemme B entsteht ein Kurzschluss für $l = l_2$)

3.3.2) $\frac{l_2}{\lambda_1} = \frac{l_2}{\lambda_2} \cdot \frac{\lambda_2}{\lambda_1} = \frac{l_2}{\lambda_2} \cdot \frac{f_1}{f_2}$

$= \frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8}$

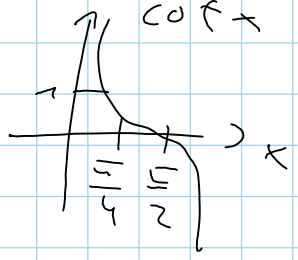
ESB l_1



$Z_B = -j Z_L \cot(\beta l_2)$

$Z_B(f_2) = -j Z_L \cot\left(\frac{2\pi}{\lambda_2} l_2\right) = 0$

$Z_B(f_1) = -j Z_L \cot\left(\frac{2\pi}{\lambda_1} l_2\right) = -j Z_L$



$r_B(f_2) = -1$

$r_B(f_1) = -j$

3.3.3)

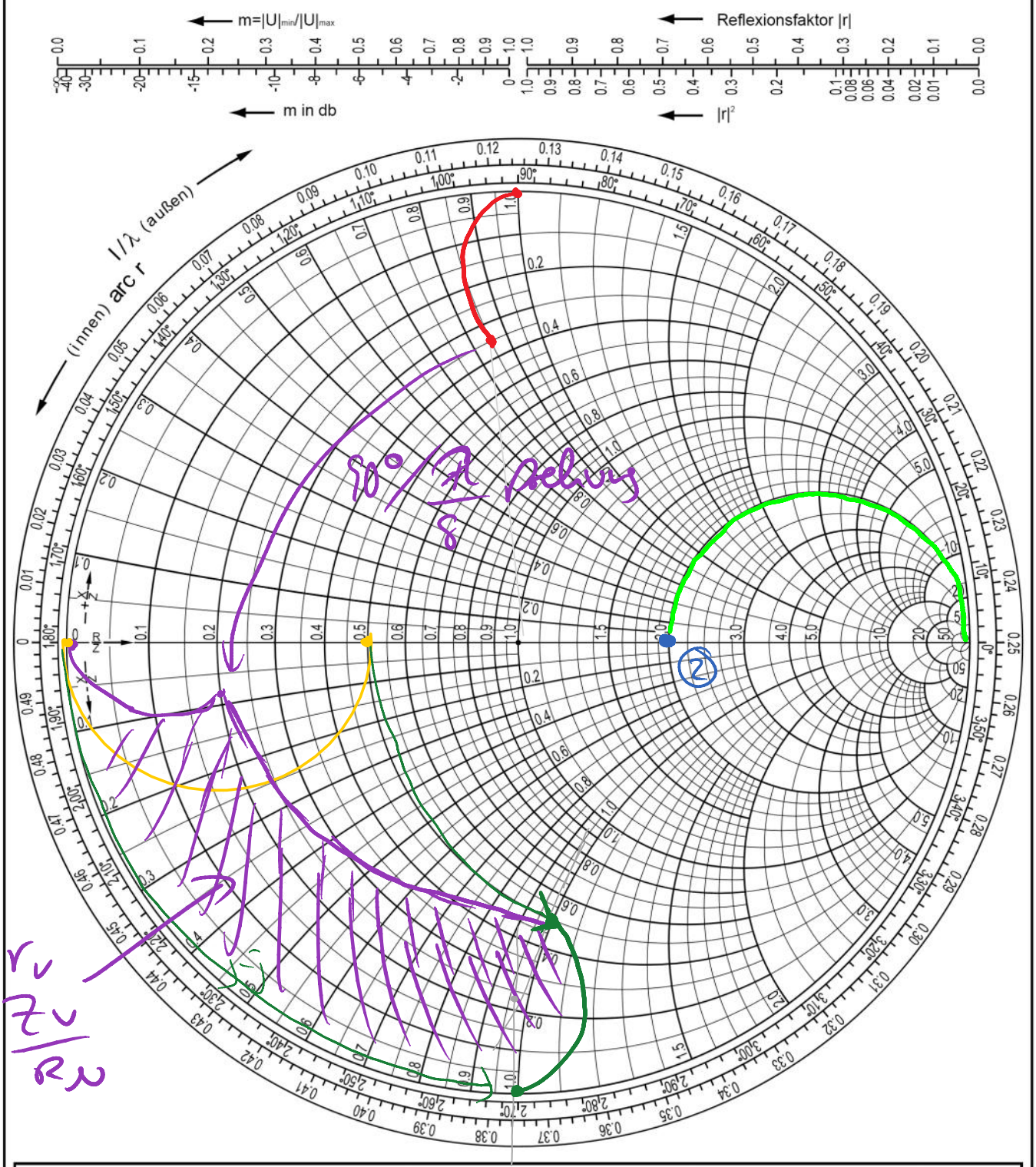
1.) $R_W = Z_L$

2.) $\frac{R_i}{R_W}$ einzeichnen (START)

SmithChart Neu

Eingefügt aus: <file://D:\Uni\SmithChartNeu.pdf>

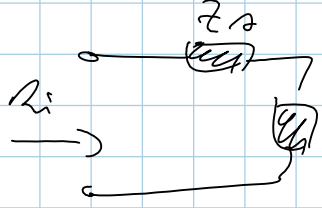
Name:	Smith-Diagramm (Widerstandsform)	Zu Aufgabe Nr.:	Normierungs-widerstand R_N =



Erläuterungen zum Transformationsweg:

Erläuterungen zum Transformationsweg:

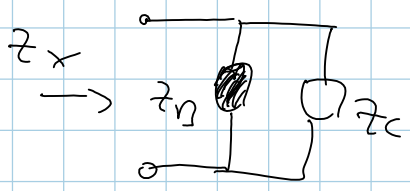
3.) $\frac{Z_A}{R_W}$ abziehen



$$\frac{Z_x}{R_W} = \frac{R_i}{R_W} - \frac{Z_A}{R_W}$$

$$Z_A = -j \underbrace{\cot(\beta_1 L_1)}_{0 \dots \infty \; > 0}$$

4.) $Z \Rightarrow Y$

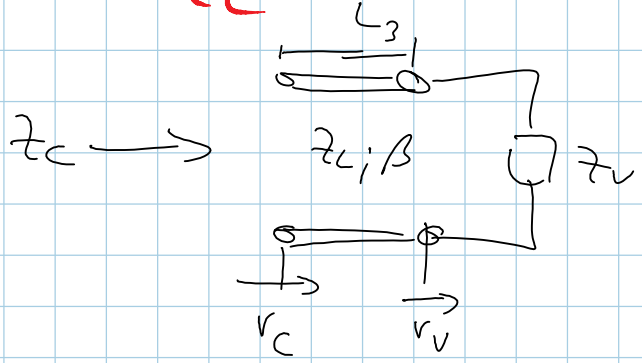


5.) $Y_C R_W = Y_x R_W - Y_B R_W$

$Y_B \cdot R_W = +j$ abziehen

6.) $Y \to Z \Rightarrow \frac{Z_C}{Z_L}$

3.3.4) 7.)



$$r_V = r_C \, e^{2j\beta L_3}$$