

1

$h(z) = \epsilon(\tau a - b)$

$u(z) = 0,5 e^{-z} \sin(\nu z) \epsilon(z)$

$Y_{0z} = \text{GESUCHT}$

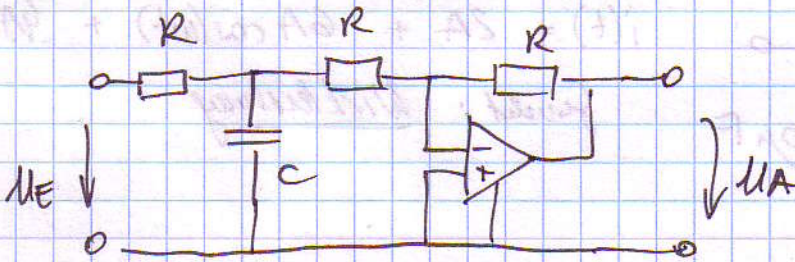
$p(z) = \frac{d}{dz} h(z) = f(\tau a - b) \cdot a$

$Y_{0z} = \int_{-\infty}^{\infty} \underbrace{f(\tau' a - b) a}_{\tau' = \frac{b}{a} \Rightarrow 0} \cdot 0,5 \sin(\nu(z - \tau')) e^{-(z - \tau')} \epsilon(z - \tau') dz'$

$\tau' = \frac{b}{a} \Rightarrow 0$

$Y_{0z} = a \cdot 0,5 \cdot \sin(\nu(z - \frac{b}{a})) e^{-(z - \frac{b}{a})} \epsilon(z - \frac{b}{a})$

2

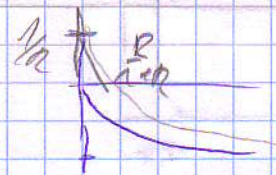
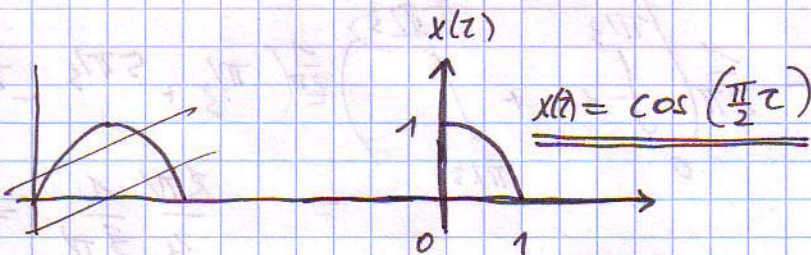


$U_{Ez} = U_{Az}, T_{Bz} = RC$

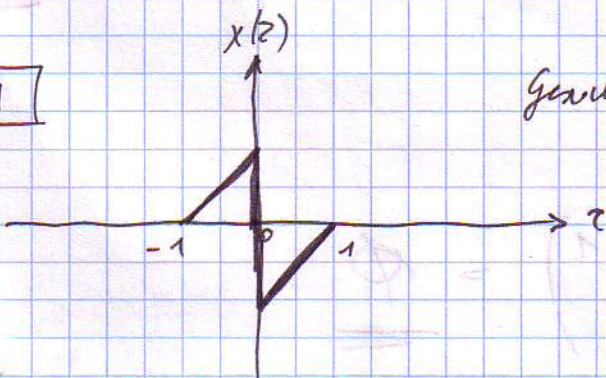
Gesucht: Berechnung & Skizze von  $h(z)$

$A(z) = \epsilon(z) (RC \frac{1}{z-1}) \cdot (e^{-z} - 1)$

3



4



Gesucht: Signalenergie

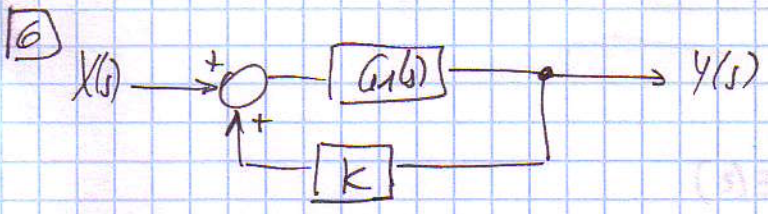
5

$y(0+) = 2$

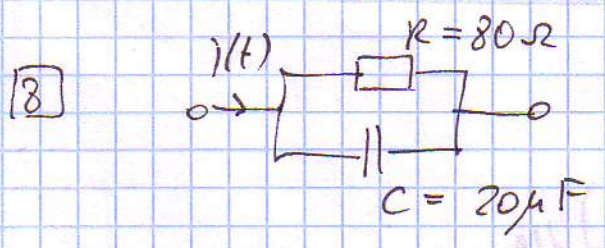
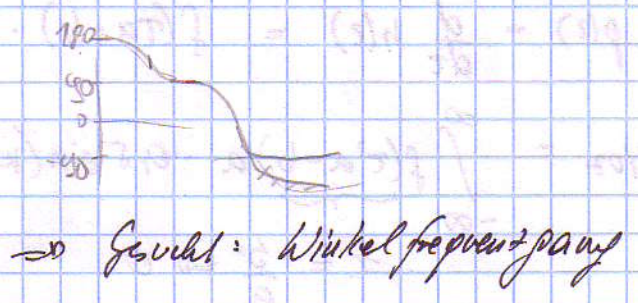
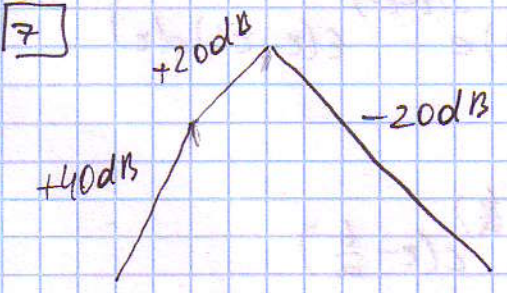
$G(s) = \frac{s-1}{s+2}$

Gesucht: VOLLSTÄNDIGES LÖSUNG

$u(z) = 2e^{-3z}$

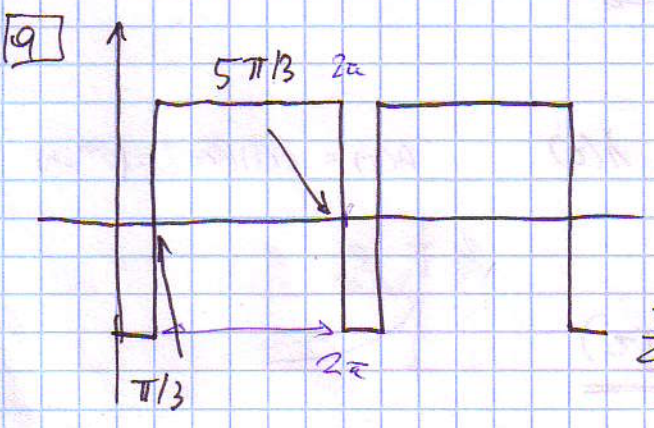


Für welche Werte von  $K$  ist das System stabil?



$$i(t) = 2A + 6A \cos(\omega t) + 4A \cos(3\omega t + 45^\circ)$$

Gesucht: Wirkleistung



- a) Durchschnittswert
- b) Effektivwert der Grundschwingung

$$\frac{1}{2\pi} \left( \int_0^{\pi/3} -1 + \int_{\pi/3}^{5\pi/3} 2a \right) = \frac{1}{2\pi} \left( -\pi/3 + 5\pi/3 - \pi/3 \right) = \frac{3\pi/3}{2\pi} = \frac{1}{2}$$

10)  $y'' + 2y = 3M$

$$\tilde{A} = \begin{bmatrix} 0 & 1 \\ 0 & -2 \end{bmatrix}$$

$\Phi$  gesucht

$$\tilde{L}^{-1} \left( (sE - A)^{-1} \right) = \underline{\underline{\Phi}}$$