BYKOMENDE INLIGTING **EXTRA INFORMATION**

Akronieme:

DFI	direkte vorm I
DFII	direkte vorm II
DFT	diskrete Fourier transform
DTFT	diskrete tyd Fourier transform
FFT	vinnige Fourier transform
FIR	eindige impulsweergawe
GS	gelyk stroom
IIR	oneindige impulsweergawe
LTI	lineêr tyd(skuif) invariant
NDLA	nie drie-letter akroniem
ROC	konvergensie omgewing
ZT	z transform

Acronyms:

DC	direct current
DFI	direct form I
DFII	direct form II
DFT	discrete Fourier transform
DTFT	discrete time Fourier transform
FFT	fast Fourier transform
FIR	finite impulse response
IIR	infinite impulse response
LTI	linear time(shift) invariant
NTLA	not three-letter acronym
ROC	region of convergence
ZT	z transform

Z-transforms:

$x[n]$	$X(z) = \sum_{n=-\infty}^{\infty} x[n]z^{-n}$	ROC: $r_2 < \|z\| < r_1$
$\delta[n]$	1	$\forall z$
$a^n u[n]$	$\frac{1}{1-az^{-1}}$	$\|z\| > \|a\|$
$-a^n u[-n-1]$	$\frac{1}{1-az^{-1}}$	$\|z\| < \|a\|$
$na^n u[n]$	$\frac{az^{-1}}{(1-az^{-1})^2}$	$\|z\| > \|a\|$
$-na^n u[-n-1]$	$\frac{az^{-1}}{(1-az^{-1})^2}$	$\|z\| < \|a\|$
$nx[n]$	$-z\frac{dX(z)}{dz}$	$r_2 < \|z\| < r_1$
$x[n-n_0]$	$z^{-n_0}X(z)$	$r_2 < \|z\| < r_1$ maybe also 0, ∞

Linear phase filters: $H(e^{j\omega}) = H_r(e^{j\omega})e^{j\Theta(e^{j\omega})}$

$H_r(e^{j\omega})$	$\Theta(e^{j\omega})$	Type	Forced zeros
$h[\frac{M-1}{2}] + 2\sum_{n=0}^{(M-3)/2} h[n]cos[\omega(\frac{M-1}{2}-n)]$	$-\omega\left(\frac{M-1}{2}\right)$	$h[n] = h[M-1-n],\ M$ odd	None
$2\sum_{n=0}^{(M/2)-1} h[n]cos[\omega(\frac{M-1}{2}-n)]$	$-\omega\left(\frac{M-1}{2}\right)$	$h[n] = h[M-1-n],\ M$ even	$\omega = \pi$
$2\sum_{n=0}^{(M-3)/2} h[n]sin[\omega(\frac{M-1}{2}-n)]$	$\frac{\pi}{2} - \omega\left(\frac{M-1}{2}\right)$	$h[n] = -h[M-1-n],\ M$ odd	$\omega = 0, \pi$
$2\sum_{n=0}^{(M/2)-1} h[n]sin[\omega(\frac{M-1}{2}-n)]$	$\frac{\pi}{2} - \omega\left(\frac{M-1}{2}\right)$	$h[n] = -h[M-1-n],\ M$ even	$\omega = 0$

Bilinear and related transforms:

$$s = \frac{2}{T}\left(\frac{1-z^{-1}}{1+z^{-1}}\right)$$

$$\Omega_c = \frac{2}{T}\tan(\frac{\omega_c}{2})$$