ECE 233 Fall 2014 Lec. #27

Announcements

1. MON : Re-taking midterm #2 for notified students only
   14:00 – 15:15
2. WED : MATLAB session for all students.
   09:30 – 10:45

Review

Signals & Systems

TD : $h(t)$ / $h[n]$

FD : $H(j\omega)$ / $H(e^{j\omega})$

LT : $H(s)$

ZT

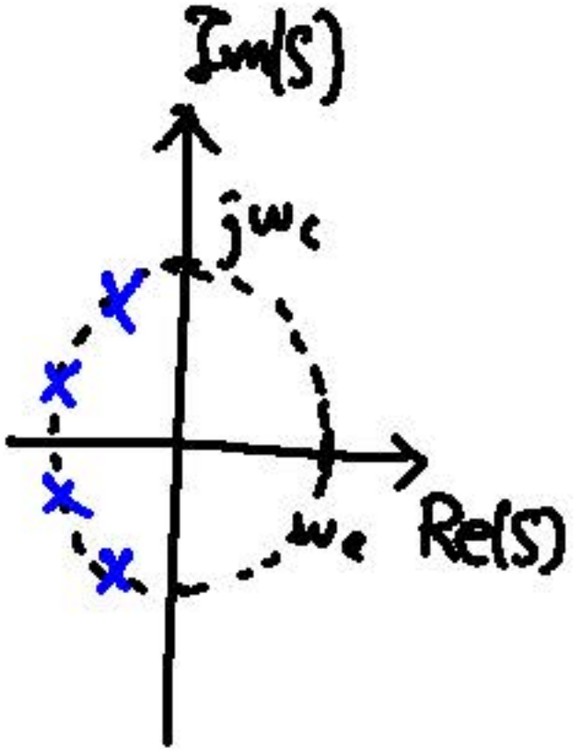
algebraic

geometric

e^{st}

z^n

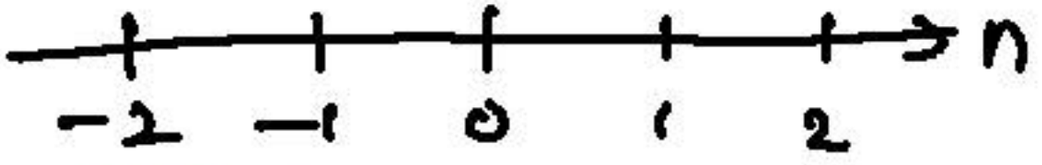
ULLT

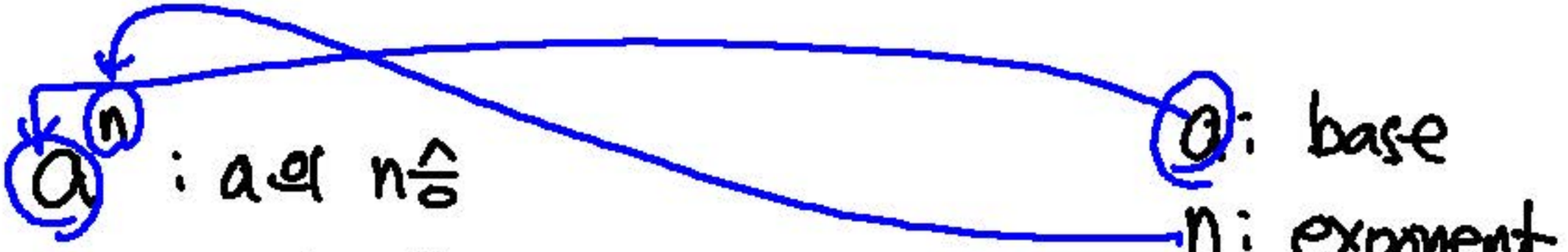


$\cdots \; z^{2} \quad z^{1} \quad 1 \quad z^{-1} \quad z^{-2} \; \cdots$

$\cdots \; x[-2] \quad x[-1] \quad x[0] \quad x[1] \quad x[2] \; \cdots$

$$X(z) \triangleq \sum_{k=-\infty}^{\infty} x[k] z^{-k}$$





a^n : a of $n \hat{=}$

a to the n

a (raised) to the (power of) n

a: base

n: exponent

a^0 : $a \neq 0$

$$e^{at}u(t) \overset{\mathcal{LT}}{\longleftrightarrow} \frac{1}{s-a}, \quad \{s \in \mathbb{C} : \mathrm{Re}(s) > \mathrm{Re}(a)\}$$

$$-e^{at}u(-t) \overset{\mathcal{LT}}{\longleftrightarrow} \frac{1}{s-a}, \quad \{s \in \mathbb{C} : \mathrm{Re}(s) < \mathrm{Re}(a)\}$$

$$a^n u[n] \overset{\mathcal{ZT}}{\longleftrightarrow} \frac{z}{z-a} = \frac{1}{1-az^{-1}}, \quad \{z \in \mathbb{C} : |z| > |a|\}$$

$$-a^n u[-n-1] \overset{\mathcal{ZT}}{\longleftrightarrow} \frac{z}{z-a} = \frac{1}{1-az^{-1}}, \quad \{z \in \mathbb{C} : |z| < |a|\}$$