2.8.2014

Details about handout #5

These notes will add to the discussions in class relating the z-transform to the bigger picture of our class.

Bigger picture

The bigger picture is that we have tools for discrete time signals and continuous time signals. The more powerful tools allow the signal to increase exponentially, but the transform may not always be defined.

Discrete time	Continuous time
z transform	Laplace transform
pro : signals can "blow up" exponentially	
con : transforms not always defined	
Discrete time Fourier	Continuous Fourier
pro : well-defined for all frequencies	
con : only "well-behaved" signals	
more : different nuances for periodic/aperiodic	

Actually, the discrete time Fourier is a special case of z. And continuous time Fourier is a special case of Laplace.

The commonality among these transforms is that linear time invariant (LTI) systems map very nicely to transform coefficients. convolution (in the time domain) becomes multiplication (transform domain).