3315 References Chapter 1_2

2. Sinusoids (Paper)

https://www.cs.sfu.ca/~tamaras/sinusoids318/sinusoids318.pdf

5.Complex Numbers ReviewVan Veen 10:22

https://www.youtube.com/watch?v=UAn9uah7puU&list=PLGI7M8vwfrFNO-gQ1xoJmN3bJy2-wp2J3

6.Complex Sinusoids Review
https://www.youtube.com/watch?v=GhhRIjMywu0&list=PLGI7M8vwfrFNO-gQ1xoJmN3bJy2-wp2J3&index=2

Basic decomposition of a complex sinusoid into a real part consisting of a cosine and an imaginary part consisting of a sine

Chapter 3

Complex Fourier Series 38,068 views15:56 Converts between Trig Series and Complex Series.

https://www.youtube.com/watch?v=Ft5iyapkSqM

Here is the math for a rectified signal with Exponential Series as in DSP First 6:20

https://youtu.be/FIKPlRsADL0?list=PLdciPPorsHunzuEpVM0nNPd1kfVbUarq3

$$\sum_{n=-\infty}^{\infty} \frac{2}{\pi(1-4n^2)} e^{j2nt}$$

Sampling and Aliasing –A Slide Show that is similar to our book presentation BME 310 Biomedical Computing -J.Schesser

https://web.njit.edu/~joelsd/Fundamentals/coursework/BME310computingcw6.pdf

Discrete-Time Sinusoidal Signals

- Since a Fourier series can be written for any continuous-time signal, let's concentrate on sinusoids
- We define a normalized frequency for the discrete sinusoidal signal.

$$x[n] = x(nT_s) = A\cos(\omega n T_s + \theta)$$
$$= A\cos(\hat{\omega} n + \theta)$$

$$\hat{\omega} = \omega T_s = \frac{\omega}{f_s}$$

- $\hat{\omega}$ is the normalized or discrete-time frequency
- Since we can have different signals with the same $\hat{\omega}$, then there can be an infinite number of continuous-time signal which yield the same discrete-time sinusoid!