Tune-Up Tuesday #10 for November 21, 2017

*Hint: zero crossings*

One period

**Transfer function**

* In negative powers of *z*
* In positive powers of *z*

Use a second-order LTI system with difference equation

to generate a sinusoidal signal. (*Midterm 2.4 question*)

1. For **,** determine the discrete-time period. See lecture slides 9-11 and 9-12.
2. Generate an impulse signal that lasts 10000 periods.
3. Use filter to compute the impulse response.
4. Use stem to plot the impulse response for the first three periods. Describe it.
5. Use freqz on the impulse response in (c). At what frequency does the peak magnitude response occur?
6. Use zplane to plot poles and zero(s) from the transfer function. Describe the pole and zero(s).