

EE 341

Some Useful Equations

The following equation is useful when dealing with discrete-time systems:

$$\sum_{k=N_1}^{N_2} a^k = \frac{a^{N_1} - a^{N_2+1}}{1 - a}$$

With the lower limit of 0 and 1, this equation becomes:

$$\sum_{k=0}^N a^k = \frac{1 - a^{N+1}}{1 - a}$$
$$\sum_{k=1}^N a^k = \frac{a - a^{N+1}}{1 - a}$$