Deck\_03

* Different functions
  + Monotonic
  + Asymptotic
  + Divergent
  + Variables and constants
  + Powers and exponents
  + Local linearity
  + Domains: bound or unbound
* Class of Functions
  + Deterministic models
    - Linear
      * Linear are like polynomial to the power of 1
      * Describes a constant rate of change
      * Local linearity
        + When you zoom into an exponential function far enough and can see it turned linear
        + Similar to cal curve with intensity for ICP
    - Polynomial
      * Have non-negative integer powers
      * Are added to models to improve the model fit
      * They are phenomenological
      * They are used as tuning parameters to increase model fit or help with normality of residuals
      * Polynomials need to have integers as their power values
    - Rational
      * Rational functions can be expressed as a ratio of polynomial functions
      * Need positive numbers
      * Can be discontinuous, division by zero is possible
    - Exponential
      * Uses x as the exponent
      * Will grow faster than a rational or polynomial because x will eventually surpass the exponent compared against
    - Logarithmic
      * Are the inverse of exponential functions
      * Models of diminishing returns
        + Example: adding fertilizer to crops increases growth until a maximum
    - Periodic
    - Combination functions
    - Hybrid Functions
      * Often theoretical basis, can be mechanistic
      * Monotonic: always increasing or decreasing
      * Ricker Function