Different Types of Functions

Polynomials

1. Linear functions
   \[ y = mx + b \]
   constant slope

   ex: spend $20 to buy lemonade supplies, and sell for $2.

2. Quadratic functions
   \[ y = ax^2 + bx + c \quad a \neq 0 \]
   \[ y = x^2 \]
   squaring function

   ex \[ y = -16x^2 + V_0x + h_0 \]
   ex "optimize" area
(3) cubic function
\[ y = ax^3 + bx^2 + cx + d \]
\[ y = x^3 \]

cubing function
ex: “optimizing” volume

Exponential Functions
\[ y = a \cdot 2^x \]
\[ y = e^x \]

ex: growth of an investment over time
decay of an element/half life
growth or decline of populations