

Exponential Functions

REMEMBERING FUNCTIONS

↳ FUNCTIONS ARE LIKE VENDING MACHINES WITH NUMBERS. YOU PUT SOME NUMBERS AND YOU GET A PRODUCT IN USUAL VENDING MACHINES, THUS, YOU PUT SOME NUMBERS INTO A FORMULA AND GET ANOTHER NUMBERS. BUT JUST LIKE IN A VENDING MACHINE, YOU CAN'T PUT ONE NUMBER THAT CAN GIVE TWO PRODUCTS, HOWEVER, YOU CAN GIVE TWO DIFFERENT NUMBERS THAT CAN GIVE ONE PRODUCT. EACH INPUT HAS EXACTLY ONE, PREDICTABLE OUTPUT.

EXPONENTIAL FUNCTIONS $\neq$ QUADRATIC FUNCTIONS

• The Anatomy of an Exponential Function

→ Standard

$$f(x) = ab^x + c$$

a = STARTING VALUE (INTERCEPT WHEN THERE IS NO "C")

b = RATE OF CHANGE

x = USUALLY CONNECTED WITH TIME

c = VERTICAL SHIFT

JUST LIKE COMPOUND INTERESTS "!"

• Compound Interest

→ Standard

$$A = P \left(1 + \frac{r}{n \cdot 100}\right)^{nt}$$

A = CURRENT VALUE (M)

P = STARTING VALUE (C)

r = PERCENTAGE INTEREST RATE

n = NUMBER OF TIMES THE INTEREST IS COMPOUNDED P/YEAR

t = NUMBER OF YEARS/TIME (T)

EXPONENTIAL TABLES

↳ FIND THE RATE OF CHANGE AND THE STARTING VALUE (WHEN $y=0$)

$\frac{y}{x} \bigg|_0 \rightarrow$ STARTING VALUE

EXPONENTIAL GRAPHS

↳ Asymptotes = lines the graph never touches ($0^2 = 0$)

'cause it's when $x=0$

↳ a

= y -intercept when there is no "c"

PLANET
GIRLS