

$$y = 2x + 3$$

$$y_1 = 2(3) + 3$$

$$y_1 = 6 + 3 = 9$$

$$y_2 = 2(5) + 3 \\ = 13$$

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{13 - 9}{5 - 3} = \frac{4}{2} = \boxed{2}$$

$$\frac{3 - (-1)}{2 - (-1)} = \frac{3 + 1}{2 + 1} = \frac{4}{3}$$

Day

Intervals: The span between

x_1 and x_2

$[x_1, x_2]$

(x, y)
↑
point

$$\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

Day Exp Rules

Product: $X^m \cdot X^n = X^{m+n}$

$$X^2 X^3 = X^5$$

Quotient: $\frac{X^m}{X^n} = X^{m-n}$

Power: $(X^m)^n = X^{mn}$

Base

Exponent

$$2^{3x} = 8$$

$$2^3 = 8$$

$$2^{3x} = 2^3$$

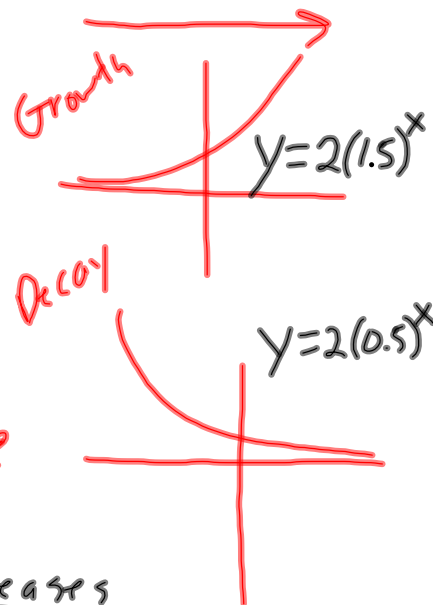
$$\frac{3x}{3} = \frac{3}{3}$$

Exp Func Dr, 4
 $y = ab^x$

b = Base

x = Exponent

A = Initial Value



Growth - Increases

Decay Decrease

$$F(t) = a(1+r)^t$$

$$F(t) = \frac{\text{Amount}}$$

$$"a" = \frac{\text{Initial}}$$

r = Percentage

t = Number

Invest \$10,000 at 4% for 6 years. What is my final Amount?

$$F(t) = a(1+r)^t$$

$$F(6) = 10,000(1+0.04)^6$$

$$= 10,000(1.04)^6 = 12,653.19$$

16,010. Ⓐ 16,006

Dry 5 Log Properties

Product $\text{Log } X \cdot Y = \text{Log } X + \text{Log } Y$

Quotient $\text{Log } \frac{X}{Y} = \text{Log } X - \text{Log } Y$

Power $\text{Log } X^Y = Y \text{Log } X$

ExponentialLogarithmic

Day 6

Exponential

$$Y = \log_3 9 \Rightarrow 3^Y = 9 \quad \text{Exponential}$$

$$81 = 3^4 \Leftrightarrow 4 = \log_3 81$$

1) Log2) Exponential3) Common4) Base Exponent

$$\log_8 32 = X$$

$$32 = 8^X$$

$$2^5 = (2^3)^X$$

$$2^5 = 2^{3X}$$

$$\frac{5}{3} = \frac{3X}{3}$$

$$\frac{5}{3} = X$$

Day 7:

Steps:

1) Log2) Power3) Isolate

0.69

$$15^{3x} = 285$$

$$\log 15^{3x} = \log 285$$

$$\frac{3x \log 15}{3 \log 15} = \frac{\log 285}{3 \log 15}$$

$$x = \frac{\log 285}{3 \log 15}$$

Day 8

Log 13

LN ← Natural Logarithms

LN 13

base is "e" = 2.71828...

LogarithmicLog Properties

Solving

Exponential

$$\ln(x-3)^2 = 4$$

Variable

$$\pm \sqrt{e^4} = \sqrt{(x-3)^2}$$

$$\pm \sqrt{e^2 \cdot e^2} = x-3$$

$$\pm e^2 = x-3$$

$$\pm 2.72^2 = x-3$$

+3

$$3 \pm 2.72^2$$

$$3 \pm 7.3984 = x$$

$$10.73984$$

$$-4.3984$$

$$\begin{array}{l} \text{Ex} \\ \sqrt{4} = 2 \\ \sqrt{x^2} = x \\ \sqrt{x \cdot x} \end{array}$$