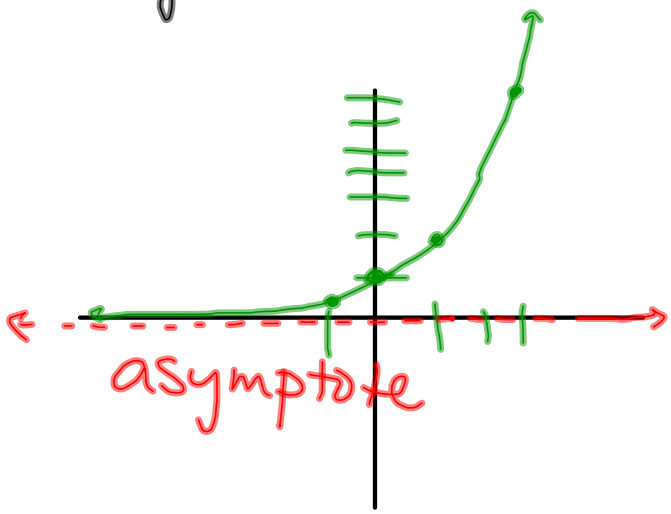
6.2 Exponential Fncs.

Obj: 1. Classify an exp. fnc.
2. Calculate growth.

$y = 2^x$

x	y
0	$2^0 = 1$
1	2
3	8
-1	$2^{-1} = \frac{1}{2}$



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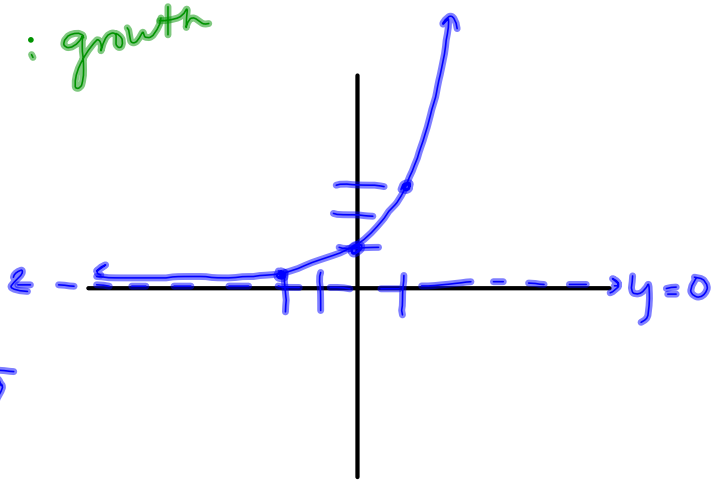
$y = 3^x$ $b > 1$: growth

x	y
0	1
1	3
-2	$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$



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$y = 1\left(\frac{1}{2}\right)^x$

$b < 1$: decay

x	y
0	1
1	$\frac{1}{2}$
-1	$\left(\frac{1}{2}\right)^{-1} = 2$

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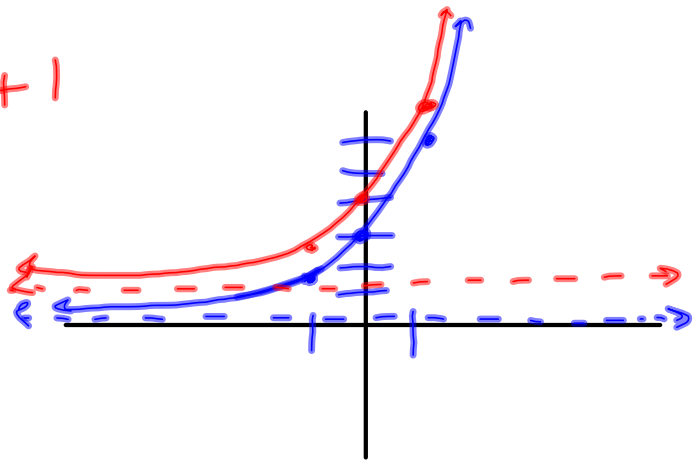
init value

$y = 3 \cdot 2^x + 1$

x	y
0	3
1	6
2	12
-1	$3 \cdot 2^{-1} = \frac{3}{2}$



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Compound Interest

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

t: time

P: principal (initial investment)

r: rate (decimal)

n: # of time compounded per yr.

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$100 invested at 5% for 10 yrs:

Find the total amt if the $ is compounded:

a. annually
b. quarterly
c. daily

$A(t) = 100\left(1 + \frac{.05}{n}\right)^{nt}$

a. $A(10) = 100\left(1 + \frac{.05}{1}\right)^{10} = 162.89$

b. $A(10) = 100\left(1 + \frac{.05}{4}\right)^{40} = 164.36$

c. $A(10) = 100\left(1 + \frac{.05}{365}\right)^{3650} = 164.87$

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