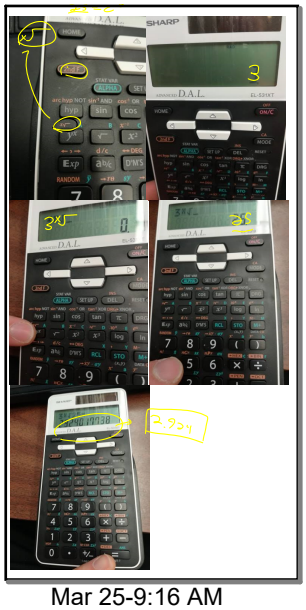
$y = c^x$

$25 = c^2$

Mar 25-9:20 AM



Mar 25-9:16 AM

TRANSFORMED EXPONENTIAL FUNCTION

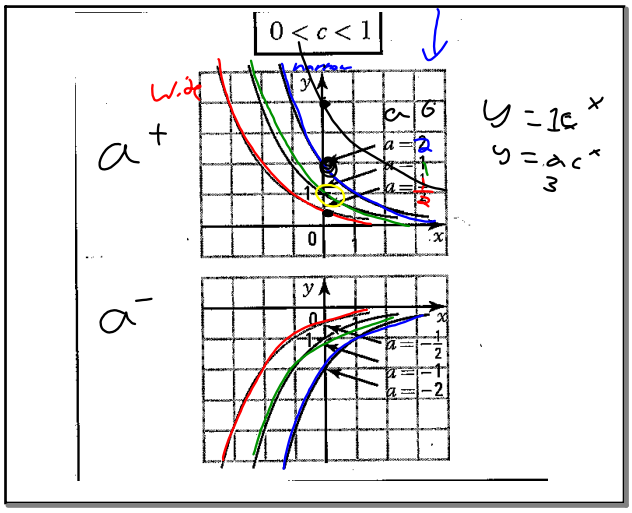
$y = ac^x$

Role of parameter "a" - creates a vertical stretch as the value of "a" increases (narrower) and a vertical compression as the value decreases (wider).

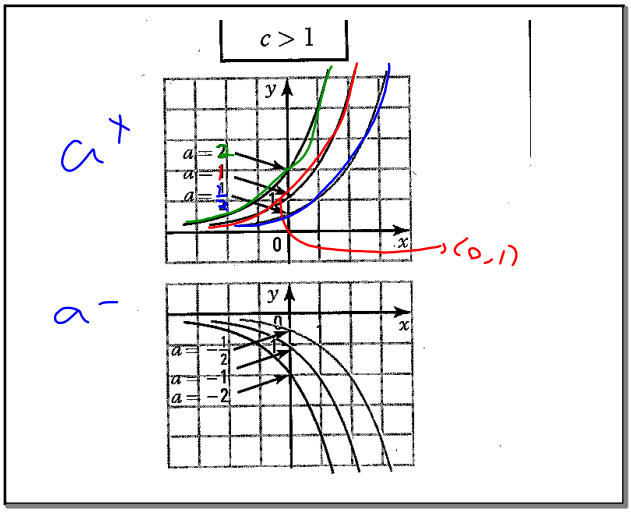
Parameter "a": corresponds to the initial value (y-intercept) of the function.

When a < 0 we observe a reflection about the x-axis

Mar 13-12:42 PM



Mar 13-12:54 PM



Mar 13-12:56 PM

For each of the following functions, indicate if
1. the function is positive or negative. 2. the function is increasing or decreasing.

a) $y = -3\left(\frac{1}{4}\right)^x$ 1. neg 2. ↓

b) $y = 2\left(\frac{3}{2}\right)^x$ 1. pos 2. ↑

c) $y = -\frac{1}{4}(2)^x$ 1. neg 2. ↑

d) $y = 10\left(\frac{1}{2}\right)^x$ 1. pos 2. ↓

e) $y = 2(3)^{-x}$ 1. pos 2. ↑

f) $y = -2(5)^{-x}$ 1. neg 2. ↑

g) $y = \left(\frac{1}{3}\right)^{-x}$ 1. _____ 2. _____

h) $y = 3\left(\frac{3}{2}\right)^{-x}$ 1. neg 2. ↑

$y = ac^x$

Mar 13-1:10 PM

$y = ac^x$

Where a = initial value / y-intercept
Where c = base / change
Where x = exponent / time

The formula can also be viewed as:

$y = a(c)^{bx}$ Where b = # of time periods

$y = \text{start}(\text{change})^{\text{time}}$

$y = a\left(1 \pm \frac{\%}{100}\right)^x$ Where + is used when the amount is increasing
Where – is used when the amount is decreasing

Mar 19-12:35 PM

Finding the rule

Steps:

1. Identify the y-intercept/ initial value/ when x=0
2. Plug it into the formula.
3. Insert the given set of coordinates (x,y).
4. Solve for C
5. Write rule

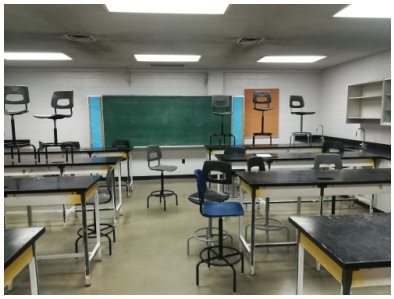
Mar 19-12:42 PM

Find the rule of the following transformed exponential functions

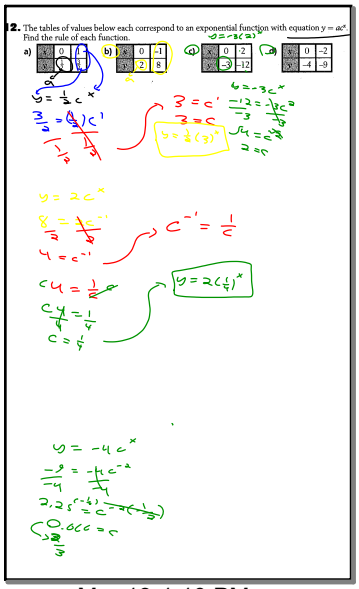
x	y
0	7
1	21
2	63

Mar 19-12:48 PM

Not Acceptable



Mar 25-4:00 PM



Mar 13-1:10 PM

Solving for y

Julie deposits $1000 at the bank at an interest rate of 8% compounded annually. The capital C(t), accumulated after t years is given by $C(t) = 1000(1.08)^t$. What is the accumulated capital after

a) 3 years? _____ b) 5 years? _____

A radioactive substance decays over time. Its mass m (in grams) is expressed as a function of time t (in years) by the equation $m = 10(0.8)^t$. What is the mass of this substance

a) today ($t = 0$)? 10 b) in 2 years? 6.4 c) 1 year ago? 8

Mar 13-1:11 PM

Mar 26-3:36 PM