6.5 Transformations of Exponential Functions

Monday, September 23, 2019 7:46 AM

Warm Up

Write and solve a compound interest formula for the following scenario: You invest $10,000 on a CD that will yield 5% interest, compounded monthly. What is the value of your investment after 10 years?

Essential Question

How do changes in an exponential function relate to the translations of its graph?

Goal: "I can. . .

Perform, analyze, and use transformations of exponential functions."

With your table

Graph the function $g(x) = 3^x$. Then on the same graph, graph the function $t(x) = 3^x + 2$. What is the difference between the two graphs?

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$$f(x) = a(b)^{x-h}+k$$

a: will do a dilation, stretch($a > 1$) or

compression $(1 > a > 0)$.

b: is your base

h: will shift the graph left(+) or right(-) h units.

k: will shift the graph up(+) or down(-) k units.

How are the following functions changed from their parent functions?

$g(x) = 2^x + 2$

$h(x) = 2^x - 4$

$t(x) = 2^{x-6}$

$n(x) = 2^{x+4}$

What transformations are taking place in each function?

$v(x) = 2^{x-3} + 4$

$r(x) = 2^{x+9} - 3$

$s(x) = 3(2)^{x-2} - 6$

With your table

What are the characteristics of each graph? (Without graphing)

$t(x) = 2^{x+4} - 9$

$h(x) = 2^{x-1} + 3$

What are the characteristics of each graph? (Without graphing)

$j(x) = 2^{x-2} + 1$

$c(x) = 2^{x+3} - 2$

https://tinyurl.com/shfwaox

Homework

Pg. 250
16, 19-24, 30, 34