Exponential Functions Review

Lesson 4

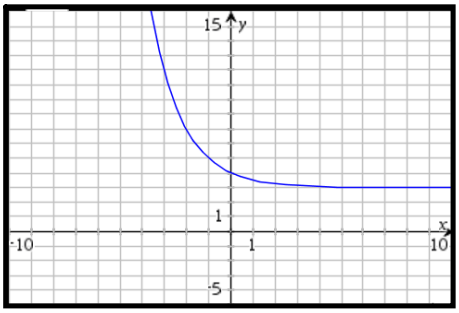
7.1 Characteristics of Exponential Functions

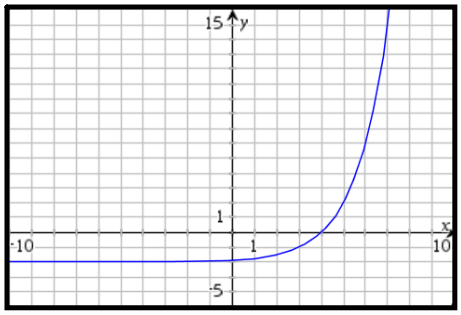
For each exponential function, state the domain, range, y-intercept, horizontal asymptote, and whether the graph is increasing or decreasing. Use your calculator to verify your answers.

$y = 2.5^x$

$y = \left(\frac{3}{4}\right)^x$

Determine an exponential function from its graph.

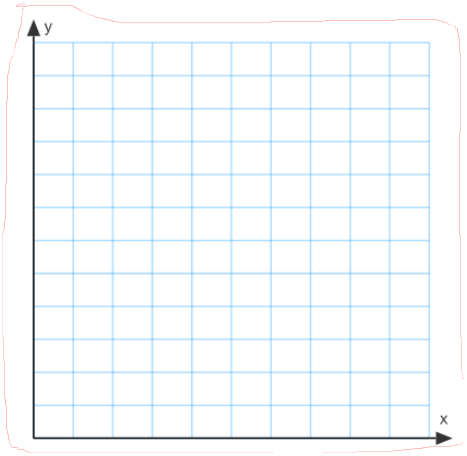




The population of a certain type of insect decreases half each night that the temperature drops below freezing.

Write a function to represent the remaining population, P , after n nights of freezing temperatures.

Graph the function on the grid provided.



What % is remaining after 4 freezing nights?

What % is remaining after 6 freezing nights?

7.2: Transformations of Exponential Functions.

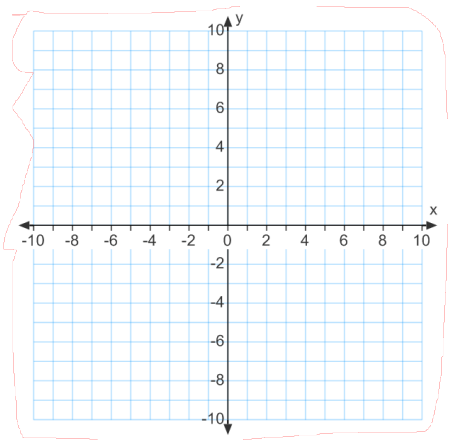
For each transformed function, state the parameter and describe its effect on the base function, $y = 2^x$

$y - 4 = 2^{x+1}$

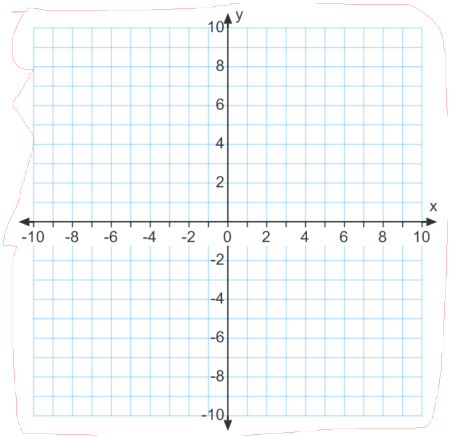
$y = -2^{\frac{1}{3}(x+2)} - 1$

Graph the base function and the transformed functions on the same axes.

$y - 4 = 2^{x+1}$



$y = -2^{\frac{1}{3}(x+2)} - 1$



Iodine-131 has a half-life of 8 days. Suppose that a sample of iodine-131 has a mass of 250 grams.

Write an exponential equation that models the mass, M, remaining after d days.

What mass of iodine-131 remains after 3 days?

After how many days will the mass of iodine-131 be < 30 g ?

7. 3 Solve the following exponential equations.

$64^{4x} = 16^{x+5}$ $125^{6x+2} = 25^{8x+1}$ $8^{x+2} = \left(\frac{1}{4}\right)^{x+3}$

$5(3)^{x} = 135$ $5^{x} = 32$

A community club notices that its membership is growing by 4% per year.

If the membership is currently 350 members, write an exponential function to model the size of the club over time.

Once the membership reaches 500 people, the club will have to find a new venue to meet at. How long will it be before they must change locations?

Homework

1. Quiz "Exponential Functions"

2. Text Pages 366 - 367, Exercises # 1 - 12

Attachments

Translations Assignment 1.doc