Math Virtual Learning

College Algebra

April 29, 2020

College Algebra
Lesson: April 29, 2020

Objective/Learning Target: Students will able to solve real world problems using exponential equations

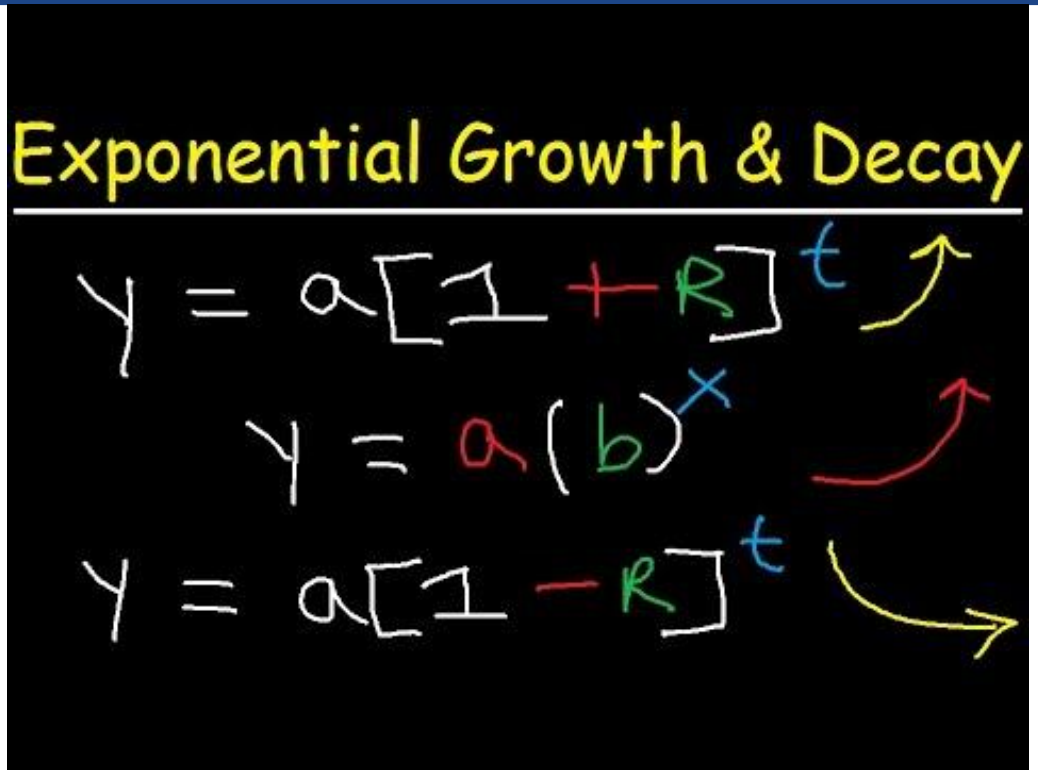
Warm Up Activity:

Practice the problems at the link to refresh your skills on solving exponential equations.

Skill Practice

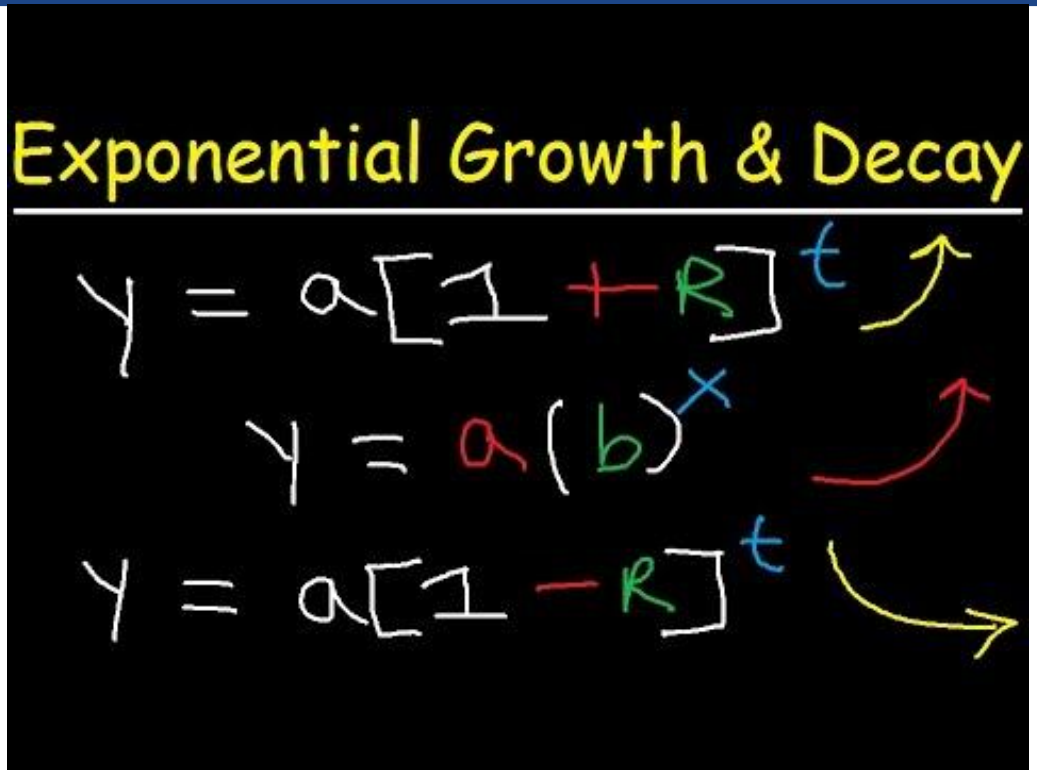
Lesson:

Watch the video over exponential growth/decay word problems. We encourage you to have your own sheet of paper out and work along with the video.



Lesson:

Watch the video over exponential finance word problems. We encourage you to have your own sheet of paper out and work along with the video.



Practice: Problems 46, 47, & 48

46. Determine the principle that must be invested at a rate of 9% compounded monthly so that the balance in 20 years will be $35,000.

a. $12,500.00 b. $9,470.00 c. $6914.23 d. $5,824.45

47. The number of bacteria N in a culture is modeled by $N = 150e^{kt}$ where t is the time in hours. If N = 375 when t = 3, what is the time required for the original population to triple in size?

a. 3.60 hours b. 5.28 hours. c. 9.00 hours d. 9.91 hours

48. World population has been growing exponentially for the past 30 years. In 1987, the world population was 5 billion. In 1998, it was 6 billion. Use this information and an exponential growth model to find the time (to the nearest year) that the population would take to double.

a) 22 years b) 42 years c) 20 years d) None of these

Online Practice Quiz

Practice Answers:

46. d

47. a

48. b

Additional Practice:

44. On the day a grandchild is born, a grandparent deposits $2500 into a fund that earns 7.5% interest and compounds quarterly. How much money will the fund be worth on the grandchild's 21st birthday?

a. $12,076.85 b. $15,750.00 c. $11,902.01 d. $11,416.10

45. The number N of bacteria in a culture is given by the model $N = 175e^{kt}$, where t is given in hours. Given that N = 420 when t = 8, estimate the time required for the number of bacteria to double.

a. 2.9 hrs. b. 6.9 hrs. c. 6.3 hrs. d. 14.3 hrs.

Additional Practice Answers:

44. C

45. C

Link to Problems 44 & 45 -- scroll down for answers