

Free download Intensified algebra 1 student activity volume 2 exploring functions and equations linear equations exponential relationships and quadratic models 2nd edition (PDF)

linear and exponential relationships differ in the way the y values change when the x values increase by a constant amount in a linear relationship the y values have equal differences in an exponential relationship the y values have equal ratios let s see some examples example 1 linear growth from table 1 we can infer that for these two functions exponential growth dwarfs linear growth exponential growth refers to the original value from the range increases by the same percentage over equal increments found in the domain define exponential functions compare linear and exponential growth evaluate exponential functions construct a basic exponential equation $y = a \cdot b^x$ given two given points or a graph compound and define linear functions and exponential functions learn to compare linear and exponential growth find the similarities and differences see examples updated 11 21 2023 finding equations between points exponential functions and linear functions exponential growth consider the function $p(t) = 100 \cdot 3^t$ describing the population $p(t)$ of a bacteria after t minutes an exponential equation is an equation with exponents where the exponent or a part of the exponent is a variable for example $3^x = 81$ $5^x = 3$ $625 = 6^{2y}$ $7 = 121$ etc are some examples of exponential equations in this course we ve learned about three types of functions linear quadratic and exponential linear functions take the form $y = mx + b$ quadratic functions take the form $y = ax^2 + bx + c$ exponential functions take the form $y = a \cdot b^x$ a linear equation has the form $f(x) = ax + b$ a is the slope and b is the y intercept an exponential equation has the form $g(x) = c \cdot d^x$ c is a constant scaling factor and d is the base note that we can rewrite as $g(x) = c \cdot e^{\ln d \cdot x}$ where e is the constant that is approximately 2.718 and \ln is the logarithm with base e example 1 solve each of the following $5 \cdot 3^x = 5 \cdot 7^x$ $2 \cdot 4^t = 2 \cdot 4 \cdot 6^t$ $3 \cdot z^9 = 5 \cdot 4 \cdot 5 \cdot 9^x$ $\frac{1}{8} \cdot x^2 = \frac{5}{3} \cdot x \cdot 5 \cdot 7^x$ 2 show solution begin align $3^x \cdot 7^x = 2 \cdot 4^x$ $\frac{1}{2} \cdot x$ end align in this section you will learn to recognize examples and non examples of exponential functions distinguish between exponential growth and exponential decay using context clues and algebra identify initial values and growth rates in context and use them to write exponential functions in this section we will introduce exponential functions we will be taking a look at some of the basic properties and graphs of exponential functions we will also discuss what many people consider to be the exponential function $f(x) = e^x$ algebra 2 t 13 identify linear and exponential functions cwh share skill learn with an example or watch a video questions answered 0 time elapsed smartscore out of 100 ixl s smartscore is a dynamic measure of progress towards mastery rather than a percentage grade to find the equation of an exponential function from a graph you ll have to work backwards start with the asymptote then the y intercept then finally the base let s start with this equation graph 1 what is the asymptote what is the y intercept powered by to save your graphs new blank graph examples lines slope intercept form how do you solve exponential equations to solve an exponential equation start by isolating the exponential expression on one side of the equation then take the logarithm of both sides of the equation to convert the exponential equation into a logarithmic equation use logarithms to solve exponential equations use the definition of a logarithm to solve logarithmic equations use the one to one property of logarithms to solve logarithmic equations solve applied problems involving exponential and logarithmic equations free equations calculator solve linear quadratic polynomial radical exponential and logarithmic equations with all the steps type in any equation to get the solution steps and graph

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begin align $3^x \cdot 7^x = 2 \cdot 4^x$ $\frac{1}{2} \cdot x$ end align

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