asymptote of an exponential function

AI generated article from Bing

Determining the horizontal asymptote - Physics Forums

The horizontal asymptote is determined to be , while the vertical asymptotes occur at and . Participants clarify that asymptotes can intersect curves, emphasizing that asymptotes describe the behavior of curves as they approach infinity, regardless of any crossings in finite ranges.

What is an asymptote and why doesn't parabola have one?

An asymptote is a straight line associated with a curve such that as a point moves along an infinite branch of the curve the distance from the point to the line approaches zero and the slope of the curve at the point approaches the slope of the line. The word's origin is Greek and means "not intersecting".

Why can horizontal asymptotes be crossed? • Physics Forums

Horizontal asymptotes can indeed be crossed by functions, as established in the discussion. The function f (x) = sin (x)/x approaches the horizontal asymptote y = 0 while crossing it infinitely many times. This behavior occurs because horizontal asymptotes describe the end behavior of a function as x approaches infinity, without restrictions on finite values of x. In contrast, vertical ...

Asymptote of a curve in polar coordinates • Physics Forums

The discussion centers on the polar curve defined by the equation rθ = 1 for 0 < θ < 2π. Participants demonstrate that the line y = 1 serves as an asymptote to this curve by evaluating the limit lim (θ → 0) (sin θ / θ) = 1. The confusion arises regarding the limit lim (θ → 0) x = +∞ and why only positive infinity is considered, given the range of θ. The necessity of proving this ...

Vertical Asymptote: Is f Defined at x=1? • Physics Forums

The discussion centers on the concept of vertical asymptotes in relation to function definitions, specifically addressing the statement: "If the line x=1 is a vertical asymptote of y = f (x), then f is not defined at 1." The consensus is that this statement is false, as demonstrated by the function f (x) = 1/(x-1), which is undefined at x=1, while other functions can be defined at that point ...

Why is y=a a horizontal asymptote on the polar coordinates?

Hi guys, I was trying to sketch a polar curve but my curve was different from the curve on maple(I plotted the same curve on maple). Homework Statement Here is the whole question, I am using t as theta. The hyperbolic spiral is described by the equation rt=a whenever t>0,where a is a...

How to find oblique asymptotes for any function in general?

The discussion focuses on finding oblique asymptotes for the function y= (2x^2+5x+11)/ (x+1). Participants emphasize the necessity of using polynomial long division to determine the oblique asymptote, which is identified as 2x+5. The method involves dividing the numerator by the denominator and analyzing the limit as x approaches infinity. Key insights include the importance of writing the ...

Do polynomials have asymptotes? • Physics Forums

First of all, do polynomials have asymptotes, including oblique ones? I know that rational functions have asymptotes, and it seems that most, if not all, of my book's exercises on this lesson contain only rational functions. So do polynomials have asymptotes? and if so, how do I determine...

Infliction Point: Concavity Change & Asymptotes • Physics Forums

Infliction point exist where concavity changes. Say y=a is a vertical asymptote. If f(x) approaches infinity from the left and negative infinity from the right. Since on the left is concave up and the right is concave down. Will "a" still be considered an infliction point? or does f'' have to...

Horizontal asymptotes - approaches from above or below?

The discussion centers on understanding horizontal asymptotes, specifically for the function y = (6x + 1) / (1 - 2x). The horizontal asymptote is identified at y = -3. The user initially misapplied limits by substituting x = -3 into the numerator while using test values for the denominator, leading to confusion about the curve's approach to the asymptote. Clarification was provided that both ...