derivative

Examples

ples Random

Assuming "derivative" refers to a computation | Use as a general topic or referring to a mathematical definition or a word instead

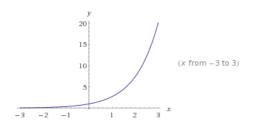
function to differentiate: e^x

Also include: differentiation variable

Derivative:

$$\frac{d}{dx}(\boldsymbol{e}^x) = \boldsymbol{e}^x$$

Plots:



250 000 200 000 150 000 100 000 50 000

Enable interactivity

Enable interactivity

Roots:

(no roots exist)

-15 -10 -5

Step-by-step solution

Properties as a real function:

Domain:

R (all real numbers)

Range:

 $\{y \in \mathbb{R} : y > 0\}$ (all positive real numbers)

Injectivity:

injective (one-to-one) on its domain

R is the set of real numbers

Periodicity:

Approximate form

periodic in x with period 2 $i \pi$

Series expansion at x=0:

$$1 + x + \frac{x^2}{2} + \frac{x^3}{6} + \frac{x^4}{24} + O\left(x^5\right)$$

(Taylor series)

Big-O notation »

Indefinite integral: Step-by-step solution $\int e^x \, dx = e^x + \text{constant}$ Limit: $\lim_{x \to -\infty} e^x = 0$ Differential geometric curves: (requires interactivity) Enable Interactivity
Inverse iterations: (requires interactivity)

Related Queries:

= d/dx(e^x)^(e^x)

= continued fraction e^x

= series (f(x+eps)/f(x))^(1/eps) at eps = 0

= polar plot abs(e^theta)

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