



derivative

Examples 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:

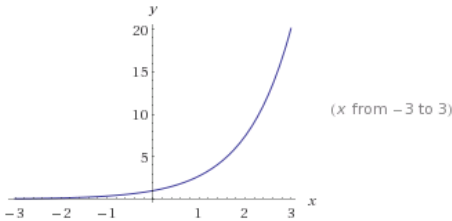
Also include: differentiation variable

Derivative:

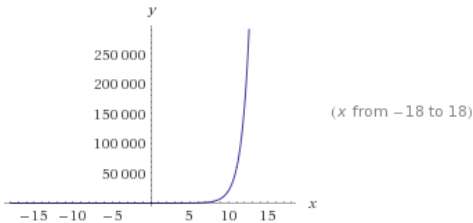
Step-by-step solution

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

Plots:



Enable interactivity



Enable interactivity

Roots:

Step-by-step solution

(no roots exist)

Properties as a real function:

Domain:

\mathbb{R} (all real numbers)

Range:

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

Injectivity:

injective (one-to-one) on its domain

\mathbb{R} is the set of real numbers

Periodicity:

Approximate form

periodic in x with period $2 i \pi$

Series expansion at $x=0$:

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

(Taylor series)

Big-O notation »

Indefinite integral:

Step-by-step solution

$$\int e^x \, dx = e^x + \text{constant}$$

Limit:

$$\lim_{x \rightarrow -\infty} e^x = 0$$

Differential geometric curves:

(requires interactivity)

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Inverse iterations:

(requires interactivity)

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Related Queries:

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

= continued fraction e^x

= series $(f(x+\epsilon)/f(x))^{1/\epsilon}$ at $\epsilon = 0$

= polar plot $\text{abs}(e^{i\theta})$