

Common Derivatives Chart

A printable derivative rules chart with constant, power, product, quotient, chain, exponential, logarithmic, and trigonometric derivatives.

Constant

$$\frac{d}{dx} [c] = 0$$

Power

$$\frac{d}{dx} [x^n] = nx^{n-1}$$

Product

$$(fg)' = f'g + fg'$$

Quotient

$$\left(\frac{f}{g}\right)' = \frac{fg' - fg'}{g^2}$$

Chain

$$\frac{d}{dx} f(g(x)) = f'(g(x))g'(x)$$

Exponential

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

Logarithm

$$\frac{d}{dx} \ln x = \frac{1}{x}$$

Sine / cosine

$$(\sin x)' = \cos x; (\cos x)' = -\sin x$$

Tangent

$$(\tan x)' = \sec^2 x$$

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01 Core rules

These rules combine to differentiate larger expressions.

Constant

$$\frac{d}{dx} [c] = 0$$

Power

$$\frac{d}{dx} [x^n] = nx^{n-1}$$

Product

$$(fg)' = f'g + fg'$$

Quotient

$$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$$

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01 Core rules (continued)

These rules combine to differentiate larger expressions.

Chain

$$\frac{d}{dx} f(g(x)) = f'(g(x))g'(x)$$

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02 Common functions

Assume each expression is in its differentiable domain.

Exponential

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

Logarithm

$$\frac{d}{dx} \ln x = \frac{1}{x}$$

Sine / cosine

$$(\sin x)' = \cos x; (\cos x)' = -\sin x$$

Tangent

$$(\tan x)' = \sec^2 x$$

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HOW TO REMEMBER IT

Name the outer operation first

1

Sums differentiate term by term.

2

Products and quotients need their own rules; do not differentiate each factor separately.

3

A composition signals the chain rule: outside derivative times inside derivative.