

Ableitungsfunktionen

$$f(x) = x^n$$

$$f'(x) = n \cdot x^{n-1}$$

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1.

$$f(x) = e^x + 2x^3 + \frac{1}{x}$$

$$f(x) = x^2 + 4x^{-2} + 2x$$

$$f(x) = 2e^x - 4x^3 + 5$$

$$f(x) = \sqrt{x} - 4x$$

2.

$$f(x) = e^{x^2} + \sqrt{x}$$

$$f(x) = \sin(x) + e^{2x}$$

$$f(x) = -\cos(x) + \frac{1}{x^2}$$

$$f(x) = 2e^{x^4} + \cos(x)$$

3.

$$f(x) = 4x^3 + x^2 + 10$$

$$f(x) = e^{2x+4} + x^5$$

$$f(x) = -\sin(x) + e^{x^3}$$

$$f(x) = \sin(x) - \cos(x) + 4x^{-5}$$

Lösungen

1.

$$f'(x) = e^x + 6x^2 - x^{-2}$$

$$f'(x) = 2x - 8x^{-3} + 2$$

$$f'(x) = 2e^x - 12x^2$$

$$f'(x) = \frac{1}{2}x^{-\frac{1}{2}} - 4$$

2.

$$f'(x) = 2x \cdot 3^{x^2} + \frac{1}{2}x^{-\frac{1}{2}}$$

$$f'(x) = \cos(x) + 2e^{2x}$$

$$f'(x) = \sin(x) - 2x^{-3}$$

$$f'(x) = 8e^{4x} - \sin(x)$$

3.

$$f'(x) = 12x^2 + 2x$$

$$f'(x) = 2e^{2x+4} + 5x^4$$

$$f'(x) = -\cos(x) + 3x^2 \cdot e^{x^3}$$

$$f'(x) = \cos(x) + \sin(x) - 20x^{-6}$$