



## Derivative Rules - Natural Exponential Exponent with Coefficient to Derivative

1 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

$$f(x) = 4e^{4x}$$

A  $f'(x) = 4e^{4x}$

B  $f'(x) = 4(4x)e^{4x-1}$

C  $f'(x) = 4e^{4x} \cdot (4x)$

D  $f'(x) = 16e^{4x}$

2 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

$$f(x) = 5e^{2\pi x}$$

A  $f'(x) = 5(2\pi x)e^{2\pi x-1}$

B  $f'(x) = 5e^{2\pi x}$

C  $f'(x) = 5e^{2\pi x} \cdot (2\pi x)$

D  $f'(x) = 10\pi e^{2\pi x}$

3 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

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

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

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

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

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

4 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

$$f(x) = 5e^{\frac{1}{2}\pi x}$$

A  $f'(x) = 5e^{\frac{1}{2}\pi x}$

B  $f'(x) = 5(\frac{1}{2}\pi x)e^{\frac{1}{2}\pi x-1}$

C  $f'(x) = \frac{5}{2}\pi e^{\frac{1}{2}\pi x}$

D  $f'(x) = 5e^{\frac{1}{2}\pi x} \cdot (\frac{1}{2}\pi x)$

5 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

$$f(x) = 2e^{2x}$$

A  $f'(x) = 2(2x)e^{2x-1}$

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

C  $f'(x) = 2e^{2x} \cdot (2x)$

D  $f'(x) = 2e^{2x}$

6 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

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

A  $f'(x) = \frac{3}{2}e^{\frac{3}{2}x}$

B  $f'(x) = e^{\frac{3}{2}x} \cdot (\frac{3}{2}x)$

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

D  $f'(x) = e^{\frac{3}{2}x}$

7 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

$$f(x) = 5e^{\frac{3}{2}x}$$

A  $f'(x) = \frac{15}{2}e^{\frac{3}{2}x}$

B  $f'(x) = 5e^{\frac{3}{2}x} \cdot (\frac{3}{2}x)$

C  $f'(x) = 5(\frac{3}{2}x)e^{\frac{3}{2}x-1}$

D  $f'(x) = 5e^{\frac{3}{2}x}$

8 Find the derivative  $f'(x)$  using the natural exponential rule and the chain rule.

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

A  $f'(x) = e^{\frac{1}{2}\pi x} \cdot (\frac{1}{2}\pi x)$

B  $f'(x) = (\frac{1}{2}\pi x)e^{\frac{1}{2}\pi x-1}$

C  $f'(x) = e^{\frac{1}{2}\pi x}$

D  $f'(x) = \frac{1}{2}\pi e^{\frac{1}{2}\pi x}$