



Derivative Rules - Natural Exponential Exponent with Power to Derivative

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$f(x) = 4e^{x^3}$$

A $f'(x) = 4e^{x^3}$

B $f'(x) = 4e^{x^3} \cdot (x^3)$

C $f'(x) = 4e^{x^3} \cdot 3x^2$

D $f'(x) = 4(x^3)e^{x^3-1}$

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

$$f(x) = 3e^{x^{-1}}$$

A $f'(x) = 3e^{x^{-1}}$

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

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

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

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

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

A $f'(x) = 4e^{x^{-1}} \cdot (x^{-1})$

B $f'(x) = 4e^{x^{-1}} \cdot (-x^{-2})$

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

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

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

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

A $f'(x) = 4e^{x^{\frac{1}{2}}} \cdot (x^{\frac{1}{2}})$

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

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

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