Name

Derivative Rules - General Exponential Exponent with Power (with Rule) to Derivative

1

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 4 \cdot 9^{x^{-1}}$$

A $f'(x) = 4 \cdot 9^{x^{-1}} \cdot (-x^{-2})$

B $f'(x) = 4 \cdot 9^{x^{-1}} \ln 9$

C $f'(x) = 4 \cdot 9^{x^{-1}} \ln 9 \cdot (-x^{-2})$

D $f'(x) = 4 \cdot 9^{x^{-1}} \ln 9 \cdot (x^{-1})$

2

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

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

A $f'(x) = 3 \cdot 2^{x^{-\frac{1}{2}}} \ln 2 \cdot \left(-\frac{1}{2}x^{-\frac{3}{2}}\right)$

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

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

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

3

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 2 \cdot 8^{x^{-\frac{1}{2}}}$$

A $f'(x) = 2 \cdot 8^{x^{-\frac{1}{2}}} \ln 8 \cdot (x^{-\frac{1}{2}})$

B $f'(x) = 2 \cdot 8^{x^{-\frac{1}{2}}} \cdot \left(-\frac{1}{2}x^{-\frac{3}{2}}\right)$

C $f'(x) = 2 \cdot 8^{x^{-\frac{1}{2}}} \ln 8$

D $f'(x) = 2 \cdot 8^{x^{-\frac{1}{2}}} \ln 8 \cdot \left(-\frac{1}{2}x^{-\frac{3}{2}}\right)$

4

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 4 \cdot 7^{x^{-1}}$$

A $f'(x) = 4 \cdot 7^{x^{-1}} \ln 7 \cdot (-x^{-2})$

B $f'(x) = 4 \cdot 7^{x^{-1}} \ln 7 \cdot (x^{-1})$

C $f'(x) = 4 \cdot 7^{x^{-1}} \ln 7$

D $f'(x) = 4 \cdot 7^{x^{-1}} \cdot (-x^{-2})$

5

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

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

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

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

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

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

6

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 5 \cdot 3^{x^{-2}}$$

A $f'(x) = 5 \cdot 3^{x^{-2}} \ln 3 \cdot (-2x^{-3})$

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

C $f'(x) = 5 \cdot 3^{x^{-2}} \ln 3$

D $f'(x) = 5 \cdot 3^{x^{-2}} \ln 3 \cdot (x^{-2})$

7

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 5^{x^2}$$

A $f'(x) = 5^{x^2} \ln 5$

B $f'(x) = 5^{x^2} \ln 5 \cdot 2x$

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

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

8

Find the derivative f'(x) using the general exponential rule and the chain rule.

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$

$$f(x) = 3 \cdot 6^{x^4}$$

A $f'(x) = 3 \cdot 6^{x^4} \cdot 4x^3$

B $f'(x) = 3 \cdot 6^{x^4} \ln 6 \cdot (x^4)$

C $f'(x) = 3 \cdot 6^{x^4} \ln 6 \cdot 4x^3$

D $f'(x) = 3 \cdot 6^{x^4} \ln 6$