Name

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

1

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 4 \cdot 7^{\frac{3}{2}x}$$

A $f'(x) = 4 \cdot 7^{\frac{3}{2}x} \ln 7 \cdot (\frac{3}{2}x)$

B $f'(x) = 6 \cdot 7^{\frac{3}{2}x}$

C $f'(x) = 4 \cdot 7^{\frac{3}{2}x} \ln 7$

D $f'(x) = 6 \cdot 7^{\frac{3}{2}x} \ln 7$

2

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 5 \cdot 7^{3x}$$

A $f'(x) = 5 \cdot 7^{3x} \ln 7$

B $f'(x) = 15 \cdot 7^{3x}$

C $f'(x) = 15 \cdot 7^{3x} \ln 7$

D $f'(x) = 5 \cdot 7^{3x} \ln 7 \cdot (3x)$

3

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 4^{3x}$$

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

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

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

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

4

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 4^{\frac{1}{2}x}$$

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

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

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

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

5

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 5 \cdot 8^{\frac{1}{2}\pi x}$$

A $f'(x) = \frac{5}{2}\pi \cdot 8^{\frac{1}{2}\pi x}$

B $f'(x) = \frac{5}{2}\pi \cdot 8^{\frac{1}{2}\pi x} \ln 8$

C $f'(x) = 5 \cdot 8^{\frac{1}{2}\pi x} \ln 8 \cdot (\frac{1}{2}\pi x)$

D $f'(x) = 5 \cdot 8^{\frac{1}{2}\pi x} \ln 8$

6

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 4^{5x}$$

A $f'(x) = 4^{5x} \ln 4$

B $f'(x) = 4^{5x} \ln 4 \cdot (5x)$

C $f'(x) = 5 \cdot 4^{5x} \ln 4$

D $f'(x) = 5 \cdot 4^{5x}$

7

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 3 \cdot 6^{5x}$$

A $f'(x) = 15 \cdot 6^{5x} \ln 6$

B $f'(x) = 15 \cdot 6^{5x}$

C $f'(x) = 3 \cdot 6^{5x} \ln 6 \cdot (5x)$

D $f'(x) = 3 \cdot 6^{5x} \ln 6$

8

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

$$\frac{d}{dx}a^u = a^u \ln a \cdot \frac{du}{dx}$$
$$f(x) = 4 \cdot 2^{\frac{3}{2}\pi x}$$

A $f'(x) = 6\pi \cdot 2^{\frac{3}{2}\pi x} \ln 2$

B $f'(x) = 6\pi \cdot 2^{\frac{3}{2}\pi x}$

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

D $f'(x) = 4 \cdot 2^{\frac{3}{2}\pi x} \ln 2$