Name

Derivative Rules - Multi Chain Product General Exponential to Derivative

1 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = (2x+5)^{-2}(2\cdot 7^x)$$

A $f'(x) = (2x+5)^{-2}(2\cdot 7^x \ln 7)$

B $f'(x) = -4(2x+5)^{-3}(2\cdot 7^x \ln 7)$

C $f'(x) = -4(2x+5)^{-3}(2\cdot 7^x)$

D $f'(x) = -4(2x+5)^{-3}(2\cdot 7^x) + (2x+5)^{-2}(2\cdot 7^x \ln 7)$

2 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = \sqrt[3]{(x^2+2)}\,(5^x)$$

A $f'(x) = \frac{1}{3}(x^2+2)^{-\frac{2}{3}}(2x)(5^x) + \sqrt[3]{(x^2+2)}\,(5^x \ln 5)$

B $f'(x) = \sqrt[3]{(x^2+2)}\,(5^x \ln 5)$

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

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

3 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = (x-5)^{-1}(2\cdot 7^x)$$

A $f'(x) = -(x-5)^{-2}(2\cdot 7^x \ln 7)$

B $f'(x) = -(x-5)^{-2}(2\cdot 7^x) + (x-5)^{-1}(2\cdot 7^x \ln 7)$

C $f'(x) = -(x-5)^{-2}(2\cdot 7^x)$

D $f'(x) = (x-5)^{-1}(2\cdot 7^x \ln 7)$

4 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = \frac{1}{(2x+5)}(3\cdot 8^x)$$

A $f'(x) = -2(2x+5)^{-2}(3\cdot 8^x) + \frac{1}{(2x+5)}(3\cdot 8^x \ln 8)$

B $f'(x) = -2(2x+5)^{-2}(3\cdot 8^x)$

C $f'(x) = -2(2x+5)^{-2}(3\cdot 8^x \ln 8)$

D $f'(x) = \frac{1}{(2x+5)}(3\cdot 8^x \ln 8)$

5 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = \sqrt[3]{(3x-3)}\,(4\cdot 7^x)$$

A $f'(x) = \sqrt[3]{(3x-3)}\,(4\cdot 7^x \ln 7)$

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

C $f'(x) = (3x-3)^{-\frac{2}{3}}(4\cdot 7^x) + \sqrt[3]{(3x-3)}\,(4\cdot 7^x \ln 7)$

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

6 Find the derivative f'(x) using the product, chain, and general exponential rules.

$$f(x) = (x+3)^2(4\cdot 9^x)$$

A $f'(x) = 2(x+3)(4\cdot 9^x)$

B $f'(x) = 2(x+3)(4\cdot 9^x) + (x+3)^2(4\cdot 9^x \ln 9)$

C $f'(x) = 2(x+3)(4\cdot 9^x \ln 9)$

D $f'(x) = (x+3)^2(4\cdot 9^x \ln 9)$

7 Find the derivative f'(x) using the product, chain, and general exponential rules.

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

A $f'(x) = -6(3x+5)^{-3}(5\cdot 2^x \ln 2)$

B $f'(x) = -6(3x+5)^{-3}(5\cdot 2^x)$

C $f'(x) = -6(3x+5)^{-3}(5\cdot 2^x) + (3x+5)^{-2}(5\cdot 2^x \ln 2)$

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

8 Find the derivative f'(x) using the product, chain, and general exponential rules.

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

A $f'(x) = 4(3x^2-5)^3(6x)(3^x)$

B $f'(x) = (3x^2-5)^4(3^x \ln 3)$

C $f'(x) = 4(3x^2-5)^3(6x)(3^x \ln 3)$

D $f'(x) = 4(3x^2-5)^3(6x)(3^x) + (3x^2-5)^4(3^x \ln 3)$