Name

Derivative Rules - Multi Chain Product Trigonometric (with Rule) to Derivative

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

$$\frac{d}{dx}\sin(x)=\cos(x)$$

$$f(x)=(2x+2)^3(\sin(x))$$

A $f'(x)=6(2x+2)^2(\cos(x))$

B $f'(x)=6(2x+2)^2(\sin(x))+(2x+2)^3(\cos(x))$

C $f'(x)=(2x+2)^3(\cos(x))$

D $f'(x)=6(2x+2)^2(\sin(x))$

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

$$\frac{d}{dx}\sin(x)=\cos(x)$$

$$f(x)=\frac{1}{(x+5)}(3\sin(x))$$

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

B $f'(x)=\frac{1}{(x+5)}(3\cos(x))$

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

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

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

$$\frac{d}{dx}\sin(x)=\cos(x)$$

$$f(x)=\sqrt{(x+4)}(2\sin(x))$$

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

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

C $f'(x)=\sqrt{(x+4)}(2\cos(x))$

D $f'(x)=\frac{1}{2}(x+4)^{-\frac{1}{2}}(2\sin(x))+\sqrt{(x+4)}(2\cos(x))$

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

$$\text{if } h(x)=f(x)\,g(x),\ h'(x)=f'(x)\,g(x)+f(x)\,g'(x)$$

$$f(x)=(x+3)^4(5\sin(x))$$

A $f'(x)=4(x+3)^3(5\sin(x))$

B $f'(x)=4(x+3)^3(5\cos(x))$

C $f'(x)=(x+3)^4(5\cos(x))$

D $f'(x)=4(x+3)^3(5\sin(x))+(x+3)^4(5\cos(x))$

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

$$\frac{d}{dx}\sin(x)=\cos(x)$$

$$f(x)=\frac{1}{(3x+2)}(4\sin(x))$$

A $f'(x)=-3(3x+2)^{-2}(4\sin(x))$

B $f'(x)=\frac{1}{(3x+2)}(4\cos(x))$

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

D $f'(x)=-3(3x+2)^{-2}(4\sin(x))+\frac{1}{(3x+2)}(4\cos(x))$

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

$$\text{if } y=f(g(x)),\ y'=f'(g(x))\cdot g'(x)$$

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

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

B $f'(x)=-6(3x+3)^{-3}(5\cos(x))+\frac{1}{(3x+3)^2}(-5\sin(x))$

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

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

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

$$\text{if } h(x)=f(x)\,g(x),\ h'(x)=f'(x)\,g(x)+f(x)\,g'(x)$$

$$f(x)=\sqrt[3]{(2x^2+4)}(4\sin(x))$$

A $f'(x)=\frac{1}{3}(2x^2+4)^{-\frac{2}{3}}(4x)(4\sin(x))+\sqrt[3]{(2x^2+4)}(4\cos(x))$

B $f'(x)=\sqrt[3]{(2x^2+4)}(4\cos(x))$

C $f'(x)=\frac{1}{3}(2x^2+4)^{-\frac{2}{3}}(4x)(4\cos(x))$

D $f'(x)=\frac{1}{3}(2x^2+4)^{-\frac{2}{3}}(4x)(4\sin(x))$

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

$$\text{if } y=f(g(x)),\ y'=f'(g(x))\cdot g'(x)$$

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

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

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

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

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