Name

Derivative Rules - Trigonometric Angle with Coefficient (with Rule) to Derivative

1

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\cos(u) = -\sin(u)\cdot\frac{du}{dx}$

$f(x) = 4\cos(3\pi x)$

A $f'(x) = -4\sin(3\pi x)\cdot(3\pi x)$

B $f'(x) = -4\sin(3\pi x)$

C $f'(x) = 12\pi\cos(3\pi x)$

D $f'(x) = -12\pi\sin(3\pi x)$

2

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\cos(u) = -\sin(u)\cdot\frac{du}{dx}$

$f(x) = 2\cos(3\pi x)$

A $f'(x) = -2\sin(3\pi x)$

B $f'(x) = -2\sin(3\pi x)\cdot(3\pi x)$

C $f'(x) = 6\pi\cos(3\pi x)$

D $f'(x) = -6\pi\sin(3\pi x)$

3

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\cos(u) = -\sin(u)\cdot\frac{du}{dx}$

$f(x) = 5\cos\left(\frac{2}{3}\pi x\right)$

A $f'(x) = -5\sin\left(\frac{2}{3}\pi x\right)\cdot\left(\frac{2}{3}\pi x\right)$

B $f'(x) = -\frac{10}{3}\pi\sin\left(\frac{2}{3}\pi x\right)$

C $f'(x) = -5\sin\left(\frac{2}{3}\pi x\right)$

D $f'(x) = \frac{10}{3}\pi\cos\left(\frac{2}{3}\pi x\right)$

4

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\sin(u) = \cos(u)\cdot\frac{du}{dx}$

$f(x) = 2\sin(2x)$

A $f'(x) = 2\cos(2x)\cdot(2x)$

B $f'(x) = 2\cos(2x)$

C $f'(x) = 4\cos(2x)$

D $f'(x) = 4\sin(2x)$

5

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\sin(u) = \cos(u)\cdot\frac{du}{dx}$

$f(x) = 3\sin(4x)$

A $f'(x) = 3\cos(4x)$

B $f'(x) = 3\cos(4x)\cdot(4x)$

C $f'(x) = 12\cos(4x)$

D $f'(x) = 12\sin(4x)$

6

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\cos(u) = -\sin(u)\cdot\frac{du}{dx}$

$f(x) = 5\cos\left(\frac{1}{2}\pi x\right)$

A $f'(x) = -5\sin\left(\frac{1}{2}\pi x\right)\cdot\left(\frac{1}{2}\pi x\right)$

B $f'(x) = \frac{5}{2}\pi\cos\left(\frac{1}{2}\pi x\right)$

C $f'(x) = -5\sin\left(\frac{1}{2}\pi x\right)$

D $f'(x) = -\frac{5}{2}\pi\sin\left(\frac{1}{2}\pi x\right)$

7

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\sin(u) = \cos(u)\cdot\frac{du}{dx}$

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

A $f'(x) = 3\cos(2x)$

B $f'(x) = 6\cos(2x)$

C $f'(x) = 6\sin(2x)$

D $f'(x) = 3\cos(2x)\cdot(2x)$

8

Find the derivative f'(x) using the trigonometric rules and the chain rule.

$\frac{d}{dx}\sin(u) = \cos(u)\cdot\frac{du}{dx}$

$f(x) = 4\sin\left(\frac{3}{2}\pi x\right)$

A $f'(x) = 6\pi\cos\left(\frac{3}{2}\pi x\right)$

B $f'(x) = 4\cos\left(\frac{3}{2}\pi x\right)\cdot\left(\frac{3}{2}\pi x\right)$

C $f'(x) = 6\pi\sin\left(\frac{3}{2}\pi x\right)$

D $f'(x) = 4\cos\left(\frac{3}{2}\pi x\right)$