



# Derivative Rules - Trigonometric Angle with Power as Fraction (with Rule) to

## Derivative

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

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

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

- |   |  |
|---|--|
| A $f'(x) = \cos\left(\frac{2}{x^3}\right)$                                  | B $f'(x) = \cos\left(\frac{2}{x^3}\right) \cdot \left(-\frac{6}{x^4}\right)$ |
| C $f'(x) = \cos\left(\frac{2}{x^3}\right) \cdot \left(\frac{2}{x^3}\right)$ | D $f'(x) = \sin\left(\frac{2}{x^3}\right) \cdot \left(-\frac{6}{x^4}\right)$ |

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

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

$$f(x) = 2 \sin\left(\frac{1}{x^2}\right)$$

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| A $f'(x) = 2 \sin\left(\frac{1}{x^2}\right) \cdot \left(-\frac{2}{x^3}\right)$ | B $f'(x) = 2 \cos\left(\frac{1}{x^2}\right) \cdot \left(-\frac{2}{x^3}\right)$ |
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|--|---|
| C $f'(x) = 2 \cos\left(\frac{1}{x^2}\right)$ | D $f'(x) = 2 \cos\left(\frac{1}{x^2}\right) \cdot \left(\frac{1}{x^2}\right)$ |
|--|---|

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

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

$$f(x) = 5 \sin\left(\frac{2}{x^3}\right)$$

- |  |   |
|--|---|
| A $f'(x) = 5 \cos\left(\frac{2}{x^3}\right)$ | B $f'(x) = 5 \cos\left(\frac{2}{x^3}\right) \cdot \left(\frac{2}{x^3}\right)$ |
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| C $f'(x) = 5 \cos\left(\frac{2}{x^3}\right) \cdot \left(-\frac{6}{x^4}\right)$ | D $f'(x) = 5 \sin\left(\frac{2}{x^3}\right) \cdot \left(-\frac{6}{x^4}\right)$ |
|--|--|

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

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

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

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| A $f'(x) = 4 \cos\left(\frac{3}{x^2}\right)$ | B $f'(x) = 4 \cos\left(\frac{3}{x^2}\right) \cdot \left(-\frac{6}{x^3}\right)$ |
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| C $f'(x) = 4 \cos\left(\frac{3}{x^2}\right) \cdot \left(\frac{3}{x^2}\right)$ | D $f'(x) = 4 \sin\left(\frac{3}{x^2}\right) \cdot \left(-\frac{6}{x^3}\right)$ |
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5 Find the derivative  $f'(x)$  using the trigonometric rules and the chain rule.

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

$$f(x) = 2 \cos\left(\frac{2}{x^2}\right)$$

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|---|---|
| A $f'(x) = -2 \sin\left(\frac{2}{x^2}\right)$ | B $f'(x) = -2 \sin\left(\frac{2}{x^2}\right) \cdot \left(-\frac{4}{x^3}\right)$ |
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| C $f'(x) = -2 \sin\left(\frac{2}{x^2}\right) \cdot \left(\frac{2}{x^2}\right)$ | D $f'(x) = 2 \cos\left(\frac{2}{x^2}\right) \cdot \left(-\frac{4}{x^3}\right)$ |
|--|--|

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

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

$$f(x) = 4 \cos\left(\frac{1}{x^3}\right)$$

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|---|--|
| A $f'(x) = -4 \sin\left(\frac{1}{x^3}\right)$ | B $f'(x) = 4 \cos\left(\frac{1}{x^3}\right) \cdot \left(-\frac{3}{x^4}\right)$ |
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| C $f'(x) = -4 \sin\left(\frac{1}{x^3}\right) \cdot \left(\frac{1}{x^3}\right)$ | D $f'(x) = -4 \sin\left(\frac{1}{x^3}\right) \cdot \left(-\frac{3}{x^4}\right)$ |
|--|---|

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

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

$$f(x) = 3 \sin\left(\frac{1}{x^2}\right)$$

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|--|--|
| A $f'(x) = 3 \cos\left(\frac{1}{x^2}\right)$ | B $f'(x) = 3 \sin\left(\frac{1}{x^2}\right) \cdot \left(-\frac{2}{x^3}\right)$ |
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|--|---|
| C $f'(x) = 3 \cos\left(\frac{1}{x^2}\right) \cdot \left(-\frac{2}{x^3}\right)$ | D $f'(x) = 3 \cos\left(\frac{1}{x^2}\right) \cdot \left(\frac{1}{x^2}\right)$ |
|--|---|

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

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

$$f(x) = \sin\left(\frac{2}{x^2}\right)$$

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| A $f'(x) = \sin\left(\frac{2}{x^2}\right) \cdot \left(-\frac{4}{x^3}\right)$ | B $f'(x) = \cos\left(\frac{2}{x^2}\right)$                                   |
| C $f'(x) = \cos\left(\frac{2}{x^2}\right) \cdot \left(\frac{2}{x^2}\right)$  | D $f'(x) = \cos\left(\frac{2}{x^2}\right) \cdot \left(-\frac{4}{x^3}\right)$ |