Name

# Derivative Rules - Multi Chain Product Trigonometric to Derivative

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

$$f(x) = (2x-2)^2\,(5\sin(x))$$

A $f'(x) = (2x-2)^2\,(5\cos(x))$

B $f'(x) = 4(2x-2)\,(5\sin(x)) + (2x-2)^2\,(5\cos(x))$

C $f'(x) = 4(2x-2)\,(5\sin(x))$

D $f'(x) = 4(2x-2)\,(5\cos(x))$

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

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

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

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

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

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

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

$$f(x) = \sqrt{(x^2-4)}\,(4\sin(x))$$

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

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

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

D $f'(x) = \sqrt{(x^2-4)}\,(4\cos(x))$

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

$$f(x) = (x-2)^{-1}\,(5\cos(x))$$

A $f'(x) = -(x-2)^{-2}\,(5\cos(x)) + (x-2)^{-1}\,(-5\sin(x))$

B $f'(x) = -(x-2)^{-2}\,(-5\sin(x))$

C $f'(x) = (x-2)^{-1}\,(-5\sin(x))$

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

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

$$f(x) = (2x^2+5)^{-1}\,(4\cos(x))$$

A $f'(x) = -(2x^2+5)^{-2}(4x)\,(4\cos(x))$

B $f'(x) = (2x^2+5)^{-1}\,(-4\sin(x))$

C $f'(x) = -(2x^2+5)^{-2}(4x)\,(4\cos(x)) + (2x^2+5)^{-1}\,(-4\sin(x))$

D $f'(x) = -(2x^2+5)^{-2}(4x)\,(-4\sin(x))$

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

$$f(x) = (2x^2+2)^4\,(4\cos(x))$$

A $f'(x) = (2x^2+2)^4\,(-4\sin(x))$

B $f'(x) = 4(2x^2+2)^3(4x)\,(4\cos(x))$

C $f'(x) = 4(2x^2+2)^3(4x)\,(-4\sin(x))$

D $f'(x) = 4(2x^2+2)^3(4x)\,(4\cos(x)) + (2x^2+2)^4\,(-4\sin(x))$

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

$$f(x) = (2x-3)^2\,(4\sin(x))$$

A $f'(x) = 4(2x-3)\,(4\cos(x))$

B $f'(x) = (2x-3)^2\,(4\cos(x))$

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

D $f'(x) = 4(2x-3)\,(4\sin(x))$

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

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

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

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

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

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