

Practicing the product rule

5/5 points (100%)

Practice Quiz, 5 questions

✓ **Congratulations! You passed!**

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points

1.

In the following quiz, you will practice how to use the product rule. Some questions look tricky, but just stick to the rules you know!

What is the differential of $f(x)g(x)$?



☒ $f'(x)g(x) + f(x)g'(x)$

Correct

Well done!



$f'(x)g'(x)$



$f'(x)g(x)$



$f(x)g'(x)$

1 / 1
points

2.

Using the product rule, differentiate with respect to x the function

$f(x) = (x + 2)(3x - 3)$.



☒ $f'(x) = 6x + 3$

Correct

Well done! You can verify this by expanding out $(x + 2)(3x - 3)$ and then differentiating the quadratic.



$f'(x) = 3$



$f'(x) = 3x + 3$



$f'(x) = 3x + 6$

Practicing the product rule

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points

5/5 points (100%)

Practice Quiz, 5 questions

Using the product rule, differentiate with respect to x the function $f(x) = e^x(x^2 + 7x - 3 - \sin(x))$.

☒ $f'(x) = e^x(x^2 + 9x + 4 - \sin(x) - \cos(x))$

Correct

Well done!

☐ $f'(x) = xe^{x-1}(x^2 + 7x - 3) + e^x(2x + 7) - \cos(x)$

☐ $f'(x) = xe^{x-1}(x^2 + 7x - 3 + \cos(x))$

☐ $f'(x) = e^x(2x + 7 - \cos(x))$



1 / 1

points

4.

Using the product rule, differentiate with respect to x the function $f(x) = (x^2 - 2x + 5)(\sin(x) + \cos(x))$.

☒ $f'(x) = (x^2 + 3)\cos(x) - (x^2 - 4x + 7)\sin(x)$

Correct

Well done!

☐ $f'(x) = (2x - 2)(\cos(x) - \sin(x))$

☐ $f'(x) = (2x - 5)(\cos(x) - \sin(x))$

☐ $f'(x) = (x^2 + 3)\sin(x) + (x^2 - 4x + 7)\cos(x)$



1 / 1

points

5.

Using the product rule, differentiate with respect to x the function $f(x) = e^x(3x - 2)\sin(x)$.

Hint: consider $f(x)g(x)h(x)$ as $[f(x)g(x)]h(x)$, and use the product rule twice.

☐ $f'(x) = e^x(3\cos(x) - 2)$

☒ $f'(x) = e^x((3x + 1)\sin(x) + (3x - 2)\cos(x))$

Correct

The best way is to apply the product rule twice.

Practicing the product rule

5/5 points (100%)

Practice Quiz, 5 questions ☐ $f'(x) = -3e^x \cos(x)$

☐ $f'(x) = 3e^x \cos(x)$

