TECHNIQUES OF DIFFERENTIATION: PRODUCT RULE - WEEK 5

NUTM Nexus Writing Team

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1 Example

1. Find the derivative of $y = (3x - 2x^2)(5 + 4x)$.

2 ClassWork Problems

Differentiate the following functions:

2. $f(x) = x(x^2 + 3)$
3. $g(x) = (x - 4)(x + 2)$
4. $f(x) = x^2(3x^3 - 1)$
5. $f(x) = (x^2 + 1)(2x + 5)$
6. $y = \frac{1}{x}(x^2 + e^x)$
7. $y = e^{2x}$
8. $g(x) = (x^2 - 4x + 3)(x - 2)$
9. $g(x) = (x^2 - 2x + 1)(x^3 - 1)$
10. $f(x) = (x^3 - 3x)(2x^2 + 3x + 5)$
11. $h(t) = (t^5 - 1)(4t^2 - 7t - 3)$
12. $g(t) = (2t^3 - 1)^2$
13. $f(x) = \sqrt[3]{x}(\sqrt{x} + 3)$
14. $f(x) = \sqrt[3]{x}(x + 1)$
15. $f(x) = (x^5 - 3x)\left(\frac{1}{x^2}\right)$
16. $f(x) = (3x^3 + 4x)(x - 5)(x + 1)$