Questions: Introduction to differentiation and the derivative

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Summary

A selection of questions for the study guide on introduction to differentiation and the derivative.

Before attempting these questions, it is highly recommended that you read Guide: Introduction to differentiation and the derivative.

In this guide, the following definitions are used:

$$\cosh(x) = \frac{e^x + e^{-x}}{2} \quad \text{and} \quad \sinh(x) = \frac{e^x - e^{-x}}{2}$$

These are **hyperbolic trigonometric functions**; for more about these, see [Guide: Introduction to hyperbolic functions].

Using the differentiation rules seen in Guide: Introduction to differentiation and the derivative, differentiate the following functions:

1.1. $x^3 + 5x - 3$

1.2. $5x$

1.3. $-5\sqrt{x}$

1.4. $-\sin(x)$

1.5. $\cos(x) + 5$

1.6. $2\sqrt{x}$

1.7. $2\ln(2x) + x^5$

1.8. $\ln(5x)$

1.9. e^{-x}

1.10. $23x + 5$

1.11. $4x + 100$

1.12. $\sinh(5x)$

1.13 $\cos(3x) - \sin(2x)$

1.14 $\ln(x) + \cos(x) + 3x$

1.15. $\dfrac{2}{5}\sinh(x) + \dfrac{2}{13}\cosh(x)$

1.16. $e^{5x} + x^2 + 3$

1.17. $\ln(x) + x^2$

1.18. $\ln(5x) - \ln(x)$

1.19. $\cosh(x) - 5x^7$

1.20. $\sqrt{3x^2}$

1.21. $x^3 + 3x - \sqrt{2x}$

After attempting the questions above, please click this link to find the answers.

Version history and licensing

v1.0: initial version created 03/25 by Sara Delgado Garcia as part of a University of St Andrews VIP project.