

# Questions: The quotient rule

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## Summary

A selection of questions for the study guide on the quotient rule.

*Before attempting these questions, it is highly recommended that you read [Guide: The quotient rule](#).*

Differentiate the following functions using the quotient rule.

1.1.  $\frac{e^x}{x}$

1.2.  $\frac{e^{7x}}{x^5}$

1.3.  $\frac{\ln(x)}{x^2}$

1.4.  $\frac{e^{-x}}{x^2 + 11x - 2}$

1.5.  $\frac{x^3 + 5x - 5}{x^2 + 3}$

1.6.  $\frac{\cos(x)}{x^2 + 3x - 1}$

1.7.  $\frac{\tan(x)}{\cos(x)}$

1.8.  $\frac{\ln(3x)}{\ln(5) + x}$

1.9.  $\frac{x^2 + 3x}{\cos(x)}$

1.10.  $\frac{\ln(x)}{x^3 + 3}$

1.11.  $\frac{5 \tan(x)}{x}$

1.12.  $\frac{3x^7 - 27x^2 + 2\sqrt{x}}{x^2 + 1}$

1.13.  $\frac{e^{-3x}}{e^{2x}}$

1.14.  $\frac{e^3 x^3}{e^x}$

1.15.  $\frac{x^5}{x^5 + 1}.$

1.16.  $\frac{\tan(x)}{\ln(x)}.$

1.17.  $\frac{3 \sin(x)}{\ln(x)}$

1.18.  $\frac{\tan(x) + 5x}{\sec(3x)}$

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[After attempting the questions above, please click this link to find the answers.](#)

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## Version history and licensing

v1.0: initial version created 05/25 by Sara Delgado Garcia as part of a University of St Andrews VIP project.

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