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.*](../studyguides/quotientrule.qmd)*.*

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\left(x\right)}{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\left(x\right)}{x^{2}+3x−1}$

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

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

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

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

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

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

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

[After attempting the questions above, please click this link to find the answers.](../answers/as-quotientrule.qmd)

## 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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