Questions: Integration by substitution

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Summary

A selection of questions for the study guide on integration by substitution.

*Before attempting these questions, it is highly recommended that you read [Guide: Integration by substitution].*

## Q1

Using an appropriate substitution or the chain rule for integration, integrate the following expressions with respect to .

1.1.

1.2.

1.3.

1.4.

1.5.

1.6.

1.7.

1.8.

1.9.

1.10.

## Q2

Using an appropriate substitution or the chain rule for integration, integrate the following trigonometric functions with respect to .

2.1.

2.2.

2.3.

2.4.

2.5.

2.6.

2.7.

2.8.

2.9.

2.10.

## Q3

Using an appropriate substitution or the chain rule for integration, integrate the following exponential and reciprocal linear functions with respect to .

3.1.

3.2.

3.3.

3.4.

3.5.

3.6.

3.7.

3.8.

## Q4

Using an appropriate substitution, integrate the following functions with respect to . Express your answers in terms of only.

4.1.

4.2.

4.3.

4.4.

4.5.

4.6.

4.7.

4.8.

4.9.

4.10.

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

## Version history and licensing

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

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