Answers: Rationalizing the denominator

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Summary

Answers to questions relating to the guide on rationalizing the denominator.

*These are the answers to* [*Questions: Rationalizing the denominator*](../questions/qs-rationalizingthedenominator.qmd)*.*

**Please attempt the questions before reading these answers!**

## Q1

1.1.

1.2.

1.3.

1.4.

1.5.

1.6.

1.7.

1.8.

1.9.

1.10.

1.11.

1.12.

1.13.

1.14.

1.15.

1.16.

## Q2

2.1.

2.2.

2.3.

2.4.

2.5.

2.6.

2.7.

2.8.

2.9.

2.10.

2.11.

2.12.

2.13.

2.14.

## Q3

3.1. To prove this equation, rationalize the denominator of the left hand side of the equation.

Since the denominator contains two square roots you can multiply the numerator and denominator by or by to rationalize the denominator.

If you multiply the numerator and denominator by you get:

Expanding the brackets in both the numerator and the denominator gives you:

Simplifying the denominator then gives you:

Simplifying further gives you the final answer and the right hand side of the equation you are proving:

If you instead multiply the numerator and denominator by you get:

Expanding the brackets in both the numerator and the denominator gives you:

Simplifying the denominator gives you:

Further simplifying the denominator then gives you:

To get a positive denominator, multiplying both the numerator and the denominator by gives you the right hand side of the equation you are proving:

3.2.

## Version history and licensing

v1.0: initial version created 12/24 by Maximilian Volmar.

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