Introduction to Logarithms: Answers

Zoe Gemmell

Answers to questions relating to the study guide on Logarithms.

*These are answers to:* [*Questions: Introduction to Logarithms*](qs-logarithms.qmd)*.* **Please attempt the questions before reading these answers!**

## Q1

For the following, find the value of if is a rational number:  
1.1. rearranged gives so

1.2. rearranged gives so

1.3. rearranged gives so

1.4. rearranged gives so

1.5. rearranged gives but 17 is odd so this would not result in a rational number for

1.6. rearranged gives so

1.7. rearranged gives so

1.8. rearranged gives so

1.9. rearranged gives so

1.10. rearranged gives so

1.11. rearranged gives so

1.12. rearranged gives so

## Q2

Before attempting this question, write out the 5 laws next to their names:

1. The Product Rule:
2. The Quotient Rule:
3. The Power Rule:
4. The Zero Rule:
5. The Identity Rule:

For the following, find the value of :

2.1. Let , so Rearranging gives: , so implying that

2.2.

2.3.   
 Rearranging gives: , so implying that

2.4.   
From question 1, rearranged gives so

2.5.

2.6.

## Q3

Convert the following logs to the given base and evaluate  
3.1. to base

3.2. to base

3.3. to base

3.4. to base

3.5. to base

## Q4

For the following, find the value of :

4.1.

4.2.

4.3.

4.4.

4.5.

4.6.