Logarithms

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## Example

Simplify the following:

## Answer

Using the log laws, we know that

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## Questions

1. Evaluate:
2. Calculate in each of the following:

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1. Simplify:
2. Find a value for in each of the following:

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## Answers

1. Using log laws or a calculator, we find:
   * 1. .

Alternatively, you may already know that , in which case you do not need to separate the logs out.

* + 1. does not exist. There exists no such that .
    2. ­ (this is done using a calculator).
    3. .

1. By using the log function, we can calculate the answers:
   * 1. . Therefore, we calculate
     2. (or any value).
     3. . Since does not exist, there is no possible that solves this equation.
     4. .

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1. Using log laws, we simplify the expressions.
   * 1. .

(= 3.912).

* + 1. .

.

* + 1. .

1. We rearrange the equations and then find a value for :
   * 1. rearranged gives: , which means that .
     2. simplified gives , which means that .
     3. is the same as , and so . This gives us , and so .
     4. , and so .
     5. , which gives us , and therefore,

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