

Watch. Practice. Understand. | Lesson 217

The Essential Properties of Logarithm and Natural Logarithm in Pre-Calculus 4.3

Watch the matching video: <https://www.youtube.com/watch?v=2GbqFclRWUk>

Practice focus: Logarithms and their properties

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Evaluate $\log$ base 2 of 32 and $\ln(e^3)$.

02 Expand $\ln(x^2\sqrt{y/z})$, assuming $x, y, z > 0$.

03 Condense $2 \log x - \log 3$, for $x > 0$.

04 Express $\log$ base 5 of 17 using natural logarithms.

Worked answers | Lesson 217

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01 Evaluate log base 2 of 32 and $\ln(e^3)$.

$2^5 = 32$, so the first value is 5; $\ln(e^3) = 3$.

02 Expand $\ln(x^2\sqrt{y/z})$, assuming $x, y, z > 0$.

$2 \ln x + (1/2) \ln y - \ln z$, using product, quotient and power rules.

03 Condense $2 \log x - \log 3$, for $x > 0$.

$\log(x^2) - \log 3 = \log(x^2/3)$.

04 Express log base 5 of 17 using natural logarithms.

Change of base: $\ln(17)/\ln(5)$, approximately 1.7604.