

3.8 The Natural Logarithm Worksheet

This document was composed and formatted by Annie Bernatchez.

The course material originated from www.jensenmath.ca

1) Use a calculator to approximate each to the nearest thousandth

a) $\ln 6.2$

b) $\ln 2.1$

c) $\ln e$

d) e^5

2) Expand each logarithm

a) $\ln x^2$

b) $\ln \sqrt[3]{x}$

c) $\ln \frac{u^3}{wv^4}$

3) Condense each expression to a single logarithm

a) $4\ln 2$

b) $\ln 10 - 5\ln 7$

c) $3\ln x + 3\ln y$

4) Solve each equation. Round your answer to 4 decimal places if necessary.

a) $e^x = 2$

b) $e^{-3n} = 83$

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c) $e^{k+7} = 26$

d) $9e^{1.4p-10} - 10 = 17$

e) $\ln x = -5$

f) $7.316 = e^{\ln(2x)}$

g) $\ln(-m) = \ln(m+10)$

h) $\ln(9x+1) = \ln(x^2+9)$

i) $\ln(1-8x) - 10 = -7$

j) $\ln(5-2x^2) + \ln 9 = \ln 43$

Answer Key

1) a) 1.825 b) 0.742 c) 1 d) 148.413

2) a) $2\ln x$ b) $\frac{1}{3}\ln x$ c) $3\ln(u) - \ln(w) - 4\ln(v)$

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3) a) $\ln 16$ b) $\ln\left(\frac{10}{16807}\right)$ c) $\ln(x^3y^3)$

4) a) 0.6931 b) -1.4729 c) -3.7419 d) 7.9276 e) 0.0067 f) 3.658 g) -5 h) 8, 1 i) -2.3857 j) $\pm \frac{1}{3}$