

Part A: Prologue

Evaluate the logs

a) $\log_2 32 =$

b) $\log_{15} 1 =$

c) $\log_3 1/27 =$

d) $\log 1000 =$

e) $\ln e^2 =$

Part B: Log Cabin

Change to either logarithmic or exponential form

a) $\log_3 x = -4$

b) $7^{-2} = x$

c) $e^{(3x-8)} = 100$

d) $\ln(2x+1) = 1$

Part C: Log-ic

Change the following to natural logs using the change of base rule

a) $\log_7 100$

b) $\log_7 2$

c) $\log_3 x$

Part D: Lumberjack

Simplify or un-simplify with log properties

a) $\ln(a^2 b^3 \sqrt{c})$

b) $\ln(ab/c)^3$

c) $3\log 2 - 2\log 5$

d) $\ln a - 5\ln b + \log 100$

Part E: Dialogue

Remember that $\log_b b^x = x$ and $b^{\log_b x} = x$

a) $\log_b(b)^{(x-3)}$

b) $e^{\ln(5x+7)}$

c) $17 \cdot 10^{\log(ab)}$

Part F: AnalogSolve for x without a calculator

a) $500 = 3^{x+1}$

b) $100 = 2 \cdot 5^{(3x-1)} + 10$

c) $2^{x+1} = 3^{2x-1}$

Part G: Epilogue

Solve without a calculator

a) $\log x + \log 5 = 2$

b) $2 \log x - 3 \log 2 = 1$

c) $\log x + \log 7 = \log x^2$

d) $2 \log(x+1) - 2 \log 3 = -1$