

Directions: Beginning in cell #1, work the problem. Search for your answer and call that cell #2. Continue in this manner until you complete the circuit. No technology should be used to simplify these expressions and/or solve these equations.

Answer: 7 # <u> 1 </u> $\log_2 8$	Answer: 1 # <u> </u> $\log_2 64 - \log_2 2$	Answer: 0 # <u> </u> $\log_{8^{\frac{1}{2}}}$
Answer: $\sqrt{3}$ # <u> </u> $\log_e e^{10}$ (NOTE: If the base is e, then we call it “the natural log” and this problem can be also written as $\ln e^{10}$)	Answer: r # <u> </u> $r \log_a a^b$	Answer: 2 # <u> </u> $\log_3 81$
Answer: 3 # <u> </u> $\log_5 25$	Answer: $-\frac{1}{3}$ # <u> </u> $\log_{10} 0.001$ (NOTE: If the base is 10, then we call it “the common log” and this problem can be also written as $\log 0.001$)	Answer: 9 # <u> </u> $\log 10^7$
Answer: -2 # <u> </u> $\log_{100} 10$	Answer: b # <u> </u> $9 \ln e$	Answer: 6 # <u> </u> $r \log_b b$

Answer: rb # _____ $7^{\log_7 b}$	Answer: 8 # _____ $\log_6 2 + \log_6 3$ NOTE: $\log_b a + \log_b c = \log_b(ac)$	Answer: 4 # _____ $\log_6 \frac{1}{6}$
Answer: $\frac{1}{3}$ # _____ $\log_{12} 1$	Answer: 5 # _____ $\log \sqrt{1000}$	Answer: -3 # _____ $\log_x 3 = 4$
Answer: $\frac{4}{3}$ # _____ $3 \ln e^2$	Answer: -1 # _____ $\log_7 \frac{1}{49}$	Answer: 10 # _____ $\ln e + \ln \sqrt[3]{e}$
Answer: $\sqrt[4]{3}$ # _____ $\log_2 x = 3$	Answer: $\frac{3}{2}$ # _____ $\log_3 x = \frac{1}{2}$	Answer: $\frac{1}{2}$ # _____ $\log_{64} 4$