

Math 12 – Workshop #27

1. Without a calculator find these values exactly

(a) $\log(0.001)$

(c) $\log_{100}(0.001)$

(f) $\log_{\sqrt{5}}(125)$

(b) $\ln\left(\frac{1}{\sqrt[3]{e}}\right)$

(d) $\log_4(8)$

(g) $\log_{2\sqrt{2}}(4)$

(e) $\log_{100}(1000\sqrt{10})$

(h) $\log_{\frac{1}{\sqrt{7}}}(49\sqrt{7})$

2. Solve the following for x

(a) $2^{x^2+1} = 4^x$

(b) $\log_x(16) = 4$

3. Write the following as a single logarithm

(a) $\frac{1}{2}\log x - 2\log y$

(b) $1 - [\log_3(x-1) + \log_3(x+1)]$

4. Suppose that $\log(a) = \frac{11}{10}$, $\log(b) = \frac{5}{2}$ and $\log(c) = \frac{4}{3}$, without using a calculator, compute the following

(a) $\log\left(\frac{a^{10}b^2}{c^3}\right)$

(b) $\log\left[\left(\frac{\sqrt{c} \cdot b}{a^2}\right)^{-1}\right]$

5. Solve the following for x

(a) $\left(3 - \ln\left(\frac{x}{2}\right)\right)^3 = 8$

(b) $\log_4(x-2) - \log_4(3x) = \log_4(4)$

(c) $\log_{11}(x) + \log_{11}(5x+2) = \frac{1}{2}\log_{11}(9)$