http://math.mnrt.net/

Name _____ raw scaled percent

Math 11 Trimester 2 Exam 1 (162 Points)
Logarithms and exponents

- **Partial credit may be given for correct work. Therefore, it is to your advantage to write clear solutions. If I cannot understand a solution within 90 seconds, then it will receive no partial credit.**
- **Answers must be completely simplified. No denominators may include radicals. All fractions reduced. Arithmetic must be completely performed; e.g. write 9 instead of $\sqrt{81}$.**
- **No calculators. All answers must be exact.**

■ **A1. Change each equation to logarithmic form. (7 points each answer)**

[1] $4^2 = 16$ **[2]** $10^{-4} = 0.0001$ **[3]** $x^3 = \frac{1}{8}$

■ **A2. Change each equation to exponential form. (7 points each answer)**

[1] $\log_5 125 = 3$ **[2]** $\log_3 \frac{1}{27} = -3$ **[3]** $\log_4 \frac{1}{64} = -3$

■ **B. Find each of the numbers. (8 points each answer)**

[1] $\log_3 \frac{1}{9}$

[2] $\log_{10} 0.0001$

[3] $\log_8 \sqrt[5]{8}$

[4] $10^{\log_{10} 2}$

[5] $\log_{\frac{1}{2}} 4$

[6] $10^{5 \log_{10} 2}$

■ **C. Write the expression as one logarithm. (5 points each answer)**

[1] $3\log_a x + \log_a(x-2)$

[2] $3\log_a(x-2) - 2\log_a(x-2)$

[3] $4\log_2(x-2) - \frac{1}{2}\log_2(x-2)$

[4] $\log_2 x - \log_2 y + \log_2(x+y)$

■ **D. Find the solution sets. (13 points each answer)**

[1] $\log_4(x-3) = 2$

[2] $2\log_5\sqrt{x} = 3$

[3] $\log_2(x^2 + 3x + 4) = 1$

[4] $10^{\log_{10} x} = \frac{2}{13}$