Math 103 Precalculus (Vinroot)

October 19, 2015

Due: Wednesday, October 21, 2015

Homework #4 Part B

No explanations are required for these problems, as steps are shown clearly where needed. **Please note that only some of these problems are to turn in.**

1. For (a)-(c), rewrite the exponential equation as a logarithmic equation. For (d)-(f), rewrite the logarithmic equation as an exponential. **Only turn in (a) and (f).**

(a): $100^{3/2} = 1000$ **(b):** $\left(\frac{1}{2}\right)^{-3} = 8$ **(c):** $\left(\frac{9}{16}\right)^{-1/2} = \frac{4}{3}$.

(d): $\log_5(\sqrt[3]{25}) = \frac{2}{3}$ **(e):** $\log_{100}(.001) = -\frac{3}{2}$ **(f):** $\log_{2/3}\left(\frac{27}{8}\right) = -3$

2. Evaluate each of the following expressions. **Only turn in (c), (d), and (g).**

(a): $\log_2\left(\frac{1}{16}\right)$ **(b):** $\log_3(\sqrt[5]{27})$ **(c):** $\log_{10}(.00001)$ **(d):** $\log_{3/4}\left(\sqrt[3]{\frac{16}{9}}\right)$

(e): $\log_2\left(\frac{1}{\sqrt{2}}\right)$ **(f):** $2\log_x(\sqrt[3]{x}) - \frac{1}{3}\log_y(y^3)$ **(g):** $\log_5 50 - 2\log_5 2 + \log_5 10$

3. Write the following expressions as a logarithm of a single expression. **Only turn in (b).**

(a): $4\log_2(x^{1/2}) - \frac{3}{2}\log_2(x^4) + \log_2(x)$

(b): $\log_3\left(\frac{x^2}{y^3}\right) - 3\log_3(y^{-1}) - 2\log_3\left(\frac{y^{1/2}}{x^{-2}}\right)$

Solve for x in each of the following. **Only turn in problems 5, 6, and 7.**

4. $\log_3(2x - 4) = 2$

5. $16 \cdot 2^x = 4^{13}$

6. $\log_2(x^2 - 2x + 3) = 2$

7. $b^{-7x} = 5My^3$

8. $8^{3x-2y} = 4$, where $27^y = 9$.