

MATH 111 WORKSHEET 8

Show all work for full credit.

1. Find the inverse function $f^{-1}(x)$ and check your answer.

$$f(x) = \frac{x + 7}{3x - 4}$$

2. Use the definition of logarithmic function to evaluate the following logarithms.

a. $\log_2 32$

b. $\log_3 1$

c. $\log \frac{1}{100}$

3. Write the logarithm in terms of $\log_b 2$ and $\log_b 3$.

a. $\log_b 12$

b. $\log_b \frac{2}{27}$

2

4. Expand the logarithmic expressions completely.

a. $\log 5x^3y$

b. $\log_b \left(\frac{2x^3}{y\sqrt{x^2+3}} \right)$

5. Condense the expression to the logarithm of a single quantity.

a. $\ln x + 4 \ln(x - 1) - 3 \ln(x + 1)$

b. $2 \log_b x - 3 \log_b y - \log_b z$

6. Solve for x.

a. $3 \log_2 x = -\log_2 27$

b. $\log_4 x + \log_4(x + 2) = \frac{1}{2} \log_4 9$