HW 7-2
Secondary III

Name: Selected Answers
Date: _____ Period: _____

Evaluate the following expressions by using properties of logarithms

1. $\log_2 2^3$ = 3

2. $3^{\log_3 5}$

3. $e^{\ln 2}$ = 2

4. $\log 2 + \log 5$

5. $\log_6 2 + \log_6 3$ = $\log_6(2 \cdot 3) = \log_6(6)$ = 1

Write each expression as a sum and/or difference of logarithms. Write exponents as factors.

6. $\log ab$

7. $\log_2(xy^2)$

$\log_2 x + \log_2 y^2$

$= \log_2 x + 2\log_2 y$

8. $\log_7\left(\frac{49}{7}\right)$

9. $\log_5(4x^2)$

$\log_5 4 + \log x^2$

$= \log_5 4 + 2\log x$

10. $\log\left(\frac{x}{x-1}\right)$

Write each expression as a single logarithm

11. $\log 25 + \log 4$

$\log(25 \cdot 4) = \log(100)$

12. $\log_4(x+1) - \log_4 x$

13. $2\log_3 x + \log_3(x-1)$

$\log_3 x^2 + \log_3(x-1)$

$= \log_3(x^2(x-1))$

14. $\log_8(x-1) - \log_8(x+1)$

Use the Change-of-Base Formula and a calculator to evaluate.

15. $\log_2 10 = \frac{\log(10)}{\log(2)}$ or $\frac{\ln(10)}{\ln(2)} = 3.32$

16. $\log_8 3$

17. $\log_{\frac{1}{3}} 19 \quad \frac{\log(19)}{\log(1/3)} = \frac{\ln(19)}{\ln(1/3)} = -2.68$

18. $\log_{\frac{1}{4}} 3$