

**Assignment 10: Properties of Logarithms and Change of Base Formula****Expand each logarithm.**

1)  $\log x^6$

2)  $\log u^4$

3)  $\log (x \cdot y)$

4)  $\log \frac{x}{y}$

**Condense each expression to a single logarithm.**

5)  $\frac{\log_7 a}{2}$

6)  $6 \log_6 x$

7)  $2 \log_5 x$

8)  $\log_5 a + \log_5 b$

**Use a calculator to approximate each to the nearest thousandth.**

9)  $\log_7 44$

10)  $\log_3 69$

11)  $\log_3 24$

12)  $\log_5 6.8$

13)  $\log_2 5.3$

14)  $\log_5 3$

## Assignment 10: Properties of Logarithms and Change of Base Formula

**Expand each logarithm.**

1)  $\log x^6$

$6 \log x$

2)  $\log u^4$

$4 \log u$

3)  $\log (x \cdot y)$

$\log x + \log y$

4)  $\log \frac{x}{y}$

$\log x - \log y$

**Condense each expression to a single logarithm.**

5)  $\frac{\log_7 a}{2}$

$\log_7 \sqrt{a}$

6)  $6 \log_6 x$

$\log_6 x^6$

7)  $2 \log_5 x$

$\log_5 x^2$

8)  $\log_5 a + \log_5 b$

$\log_5 ba$

**Use a calculator to approximate each to the nearest thousandth.**

9)  $\log_7 44$

$1.945$

10)  $\log_3 69$

$3.854$

11)  $\log_3 24$

$2.893$

12)  $\log_5 6.8$

$1.191$

13)  $\log_2 5.3$

$2.406$

14)  $\log_5 3$

$0.683$