Name_____ ID: 1

SM3-A HW #8-1 (properties of logs Part 1)

Date_____ Period____

Expand each logarithm.

1) $\log_4 a^4$

2) $\log_4 \sqrt[3]{x^6}$

3) $\log_9 \left(a^5 \cdot b \cdot c\right)^5$

4) $\log_9 \left(w\sqrt[3]{x} \cdot y \cdot z\right)$

5) $\log_7 \left(w \cdot u^3 \cdot v\right)^6$

Condense each expression to a single logarithm.

6) $5\log_5 a$

7) $\log x + \log y$

8) $3\ln x$

9) $\log_9 u + \log_9 v + \log_9 w$

10) $2\log_9 x$

11) $4\log_6 a + 4\log_6 b$

12) $3\log_7 x + 9\log_7 y$

Identify the domain and range of each.

13) $y = \log_2 \left(4x + 18\right) + 2$

14) $y = \ln \left(3x + 2\right) + 5$

Rewrite each equation in exponential form.

15) $\log_{16} 256 = 2$

Rewrite each equation in logarithmic form.

16) $19^2 = 361$