SM3-A HW #8-2 (quotient of logs property)

Date_____ Period____

Expand each logarithm.

1) $\log_4 \left(c\sqrt[3]{a \cdot b}\right)$

2) $\log_6 \frac{x^3}{y^6}$

3) $\log_7 \left(\frac{u}{v^6}\right)^3$

4) $\log_7 \frac{u^4}{v^2}$

5) $\log_4 \left(u \cdot v \cdot w^4\right)$

6) $\log_7 \left(\frac{x^6}{y}\right)^2$

Condense each expression to a single logarithm. Convert rational exponents into radical form.

7) $\frac{1}{3} \cdot \log_7 x + \frac{1}{3} \cdot \log_7 y + \frac{1}{3} \cdot \log_7 z$

8) $5\log_4 u - 15\log_4 v$

9) $\frac{1}{2} \cdot \log_8 7 + \frac{1}{2} \cdot \log_8 10 + \frac{1}{2} \cdot \log_8 3$

10) $3\log_7 3 + \frac{1}{2} \cdot \log_7 10$

11) $3\log_9 a - 9\log_9 b$

12) $\frac{1}{2}\left(\log_6 2 + \log_6 5 + \log_6 11\right)$

Rewrite each equation in exponential form.

13) $\log_{196} 14 = \frac{1}{2}$

14) $\log_{14} 1 = 0$

Rewrite each equation in logarithmic form.

15) $y^{-12} = x$

16) $16^{m} = n$

