Secondary 3 Name_____

8-4 Classwork

Date_____ Period____

Write each expression as a single logarithm.

1) $6\log 8 + 3\log 5$

2) $\log_6 3 + \log_6 7 + 4\log_6 8$

3) $3\log_6 2 - 4\log_6 3$

4) $54 - 3\log_2 11$

Expand each logarithm.

5) $\log_4 \sqrt{a \cdot b \cdot c}$

6) $\log_2 \left(10 \cdot 3^2\right)^4$

7) $\log_8 \left(u^4 \cdot v\right)^2$

8) $\log_3 \left(\frac{u^3}{v}\right)^4$

Use the change of base formula. Evaluate each expression.

9) $\log_6 36$

10) $\log_4 \frac{1}{64}$

Use the change of base formula and a calculator to approximate each to the nearest thousandth.

11) $\log_4 35$

12) $\log_2 60$

13) $\log_4 5.1$

14) $\log_4 4.4$

15) ln 3.5

16) ln 4.7

17) Write log 150 as a sum or difference of two logarithms. Simplify if possible.

18) If log x = 5, what is the value of $\frac{1}{x}$?