Algebra 2 CP Worksheet 8.5 #1 **Name** _____

SHOW ALL WORK AND ANSWERS ON SEPARATE PAPER.

Use the properties of logarithms to rewrite the expression in terms of log 3 and log 4. Then use log 3 ≈ 0.477 and log 4 ≈ 0.602 to approximate the expression.

1. $\log\frac{3}{4}$

2. $\log 9$

3. $\log\frac{1}{4}$

Expand the expression (write as a sum or difference of logarithms).

4. $\log_2\frac{x}{5}$

5. $\log xy^2$

Condense the expression (write as a single logarithm).

6. $\log_3 7 - \log_3 x$

7. $\frac{1}{2}\log x - \log 4$

8. $\frac{1}{2}\log_b 25 + 3\log_b z - \frac{1}{3}\log_b 8$

Evaluate each expression.

9. $8^{\log_8 9} - \log_4 4^5$

10. $\log_8 64 - 7^{\log_7 1}$

Use the change of base formula to rewrite the expression. Then use a calculator to evaluate the expression. Round to three decimal places.

11. $\log_5 64$

12. $\log_2 0.72$

13. $\log_{0.8} 12$