Algebra 2 CP Worksheet 8.5 #2 **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. $\log 12$

2. $\log \frac{4}{27}$

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

3. $\log_6 3x$

4. $\log_3 \sqrt{x}\, yz$

5. $\log_3 \frac{x^2}{9}$

Condense the expression (write as a single logarithm).

6. $2\log_5 x + \log_5 3$

7. $\frac{2}{3}\log_2 x - 5\log_2 y + 7\log_2 z$

Evaluate each expression.

8. $4^{\log_4 87} + \log_5 5$

9. $\log_3 \frac{1}{3} + \log_4 4$

10. $9^{\log_9 2} - 6^{\log_6 10}$

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

11. $\log_{1/2} 15$

12. $\log_7 8$