

LOG PROPERTIES

Name _____

Math III

Date _____ Per _____

Condense the following expression into one logarithmic expression.

1. $\log_5 8 - \log_5 12$

2. $\log 16 + \log 4$

3. $2\log x + \log 5$

4. $4\log_{16} 12 - 4\log_{16} 2$

5. $3\log x + 5\log y$

6. $\log 20 + 2\log \frac{1}{2} + \log x$

7. $5\log_7 x - 2\log_7 x$

8. $\frac{1}{2}\log x + \frac{1}{3}\log y - 2\log z$

9. $10\log x + 2\log 10$

10. $3(\log 3 - \log x) + (\log x - \log 9)$

Expand the following expressions.

11. $\log_2 9x$

12. $\log 4x^2$

13. $\log_6 x^6$

14. $\log_6 \frac{10}{3}$

15. $\log 6x^3yz^2$

16. $\log \sqrt{x}$

17. $\log \frac{2x}{y}$

18. $\log_4 \left(\frac{y}{6}\right)^2$

19. $\log \sqrt{\frac{3xy}{z}}$

20. $\log \sqrt[4]{x^3}$