Putting it All Together!

CONDENSING LOGS

Directions: Rewrite as a single logarithm. Simplify if possible.

19. $2 \cdot \log 6 - \log 9$

20. $4 \cdot \log_4 a + 2 \cdot \log_4 b$

21. $7 \cdot \log_4 u - 3 \cdot \log_4 v^2$

22. $\log_2 15 + \log_2 4 - \log_2 6$

23. $\log_3 4 + \log_3 y + \frac{1}{2} \cdot \log_3 49$

24. $\frac{1}{3}(\log_5 8 + \log_5 27) - \log_5 3$

25. $3 \cdot \log_2 4 - \log_2 32$

26. $2 \cdot \log 6 - \frac{1}{4} \cdot \log 16 + \log 3$

EXPANDING LOGS

Directions: Expand each logarithm.

27. $\log_6 \left(xyz^4\right)$

28. $\log_4 \left(\frac{a^9}{b}\right)$

29. $\log_7 \left(q^4 r^2\right)^2$

30. $\log_2 \left(\frac{y}{z^5}\right)^2$

31. $\log \sqrt{7x^3}$

32. $\log_3 \sqrt[4]{m^5 n^2}$