

# Condensing Logarithmic Expressions

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Condense each expression to a single logarithm.

1)  $\log_a m + \log_a n$  = \_\_\_\_\_

2)  $3(3 \log_3 u - 2 \log_3 v)$  = \_\_\_\_\_

3)  $\frac{1}{3}(\log_a 2 + 2 \log_a t)$  = \_\_\_\_\_

4)  $\log_4 g - \log_4 h$  = \_\_\_\_\_

5)  $5 \log_5 x + 6 \log_5 y$  = \_\_\_\_\_

6)  $\frac{3}{2} \log_p r - \frac{1}{2} \log_p 2$  = \_\_\_\_\_

7)  $\frac{1}{3} \log_2 s - \log_2 t$  = \_\_\_\_\_

8)  $4(2 \log_{10} p + \log_{10} q)$  = \_\_\_\_\_

9)  $\log_n 4 - \log_n z$  = \_\_\_\_\_