A. Rewrite each logarithmic expression in expanded form using the properties of logarithms.

1. $\log_3(5x)$

2. $\log_5\left(\frac{a}{b}\right)$

3. $\log_3(n^4)$

4. $\log\left(\frac{x}{7}\right)$

5. $\log_2(mn)$

6. $\log(p^q)$

7. $\ln(x^2)$

8. $\ln\left(\frac{c}{3}\right)$

9. $\log_3(7x^2)$

10. $\ln(2x^3y^2)$

B. Rewrite each logarithmic expression as a single logarithm.

1. $\log x - 2\log y$

2. $3\log_4 x + \log_4 y - \log_4 z$

3. $6\log_2 x - 2\log_2 x$

4. $\log 3 + 2\log 7 - \log 6$

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

6. $7\log_3 x - (2\log_3 x + 5\log_3 y)$