Logarithms; Product, Quotient & Power Rules

Procedure

Rewrite expressions involving logarithms as a single log using:

1. **$\log ab = \log a + \log b$**
2. **$\log a/b = \log a - \log b$**
3. **$\log a^c = c \log a$**

Rewrite the expressions as a single logarithm

1. $\log 7 + \log 5$
2. $\log 8 + \log 4 + \log 2$
3. $\log 10 - \log 2$
4. $\text{Log } 30 - \log 6 + \log 10$
5. $3 \log 2$
6. $3 \log x + \log x - 2 \log x$
7. $\log (m + 1) - \log m - \log 4$
8. $5 \log (x^2 - 1) - 4 \log (x^2 - 1) + \log (x + 1)$
9. $\log_5 a \ \log_5 b + \log_3 1$