

## 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.  $\log 30 - \log 6 + \log 10$
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.  $\log_5 a \log_5 b + \log_3 1$