

N 234 PAG 75

$$\log_a x^2 \cdot y^3 = \log_a x^2 + \log_a y^3 = 2 \log_a x + 3 \log_a y$$

N 235

$$\log_a \frac{xy}{z} = \log_a xy - \log_a z = \log_a x + \log_a y - \log_a z$$

N 236

$$\begin{aligned} \log_a \sqrt{\frac{xy}{z}} &= \log_a \left( \frac{xy}{z} \right)^{\frac{1}{2}} = \frac{1}{2} \log_a \left( \frac{xy}{z} \right) = \\ &= \frac{1}{2} \left[ \log_a (xy) - \log_a z \right] = \frac{1}{2} \left[ \log_a x + \log_a y - \log_a z \right] \end{aligned}$$

N 237

$$\begin{aligned} \log_a \frac{\sqrt[3]{xy^2}}{z^3} &= \log_a \sqrt[3]{xy^2} - \log_a z^3 = \log_a (xy^2)^{\frac{1}{3}} - 3 \log_a z = \\ &= \frac{1}{3} \log_a xy^2 - 3 \log_a z = \\ &= \frac{1}{3} (\log_a x + 2 \log_a y) - 3 \log_a z = \\ &= \frac{1}{3} \log_a x + \frac{2}{3} \log_a y - 3 \log_a z \end{aligned}$$