

Логарифмы

$$1. \log_a(x_1 \cdot x_2) = \log_a x_1 + \log_a x_2 \quad (a > 0, a \neq 1, x_1 > 0, x_2 > 0).$$

$$2. \log_a \frac{x_1}{x_2} = \log_a x_1 - \log_a x_2 \quad (a > 0, a \neq 1, x_1 > 0, x_2 > 0).$$

$$3. \log_a(x^\alpha) = \alpha \log_a x \quad (a > 0, a \neq 1, x > 0, \alpha \in \mathbf{R}).$$

$$4. \log_a x = \frac{\log_b x}{\log_b a} \quad (a > 0, a \neq 1, b > 0, x > 0).$$

$$5. \log_a b = \frac{1}{\log_b a} \quad (a > 0, a \neq 1, b > 0, b \neq 1).$$

$$6. \log_{a^\alpha} x = \frac{1}{\alpha} \log_a x \quad (a > 0, a \neq 1, x > 0, \alpha \neq 0).$$