

# 対数の性質

$$[1] \quad \log_a 1 = 0, \quad \log_a a = 1$$

$$[2] \quad \log_a MN = \log_a M + \log_a N$$

$$[3] \quad \log_a \frac{M}{N} = \log_a M - \log_a N$$

$$[4] \quad \log_a M^r = r \log_a M$$

$$[5] \quad \log_a \frac{1}{N} = -\log_a N$$
$$\log_a \sqrt[n]{M} = \frac{1}{n} \log_a M$$