

$$1) \log_{\frac{1}{2}} 16 = \log_{2^{-1}} 2^4 = -4 \log_2 2 = -4 \quad ①$$

$$\log_3 \frac{1}{27} = \log_3 3^{-3} = -3 \log_3 3 = -3$$

$$\log_{\frac{1}{2}} \frac{1}{32} = \log_{\frac{1}{2}} \left(\frac{1}{2}\right)^5 = 5 \log_{\frac{1}{2}} \frac{1}{2} = 5$$

$$7^{-\log_7 8} = 7^{\log_7 8^{-1}} = 8^{-1} = \frac{1}{8}$$

$$2) 5^{1+\log_5 3} = 5 \cdot 5^{\log_5 3} = 5 \cdot 3 = 15$$

$$\left(\frac{1}{3}\right)^{2 \log_{\frac{1}{3}} 7} = \left(\frac{1}{3}\right)^{\log_{\frac{1}{3}} 7^2} = 7^2 = 49$$

$$2^{3 \log_2 5} = 2^{\log_2 5^3} = 5^3 = 125$$

$$10^{3-\log_{10} 5} = \frac{10^3}{10^{\log_{10} 5}} = \frac{1000}{5} = 200$$

$$3) \log_3 11 - \log_3 33 = \log_3 \frac{11}{33} = \log_3 \frac{1}{3} = \log_3 3^{-1} =$$

$$= -\log_3 3 = -1$$

$$\lg 35 - \lg 7 + \lg 2 = \lg \frac{35 \cdot 2}{7} = \lg \frac{70}{7} = \lg 10 = 1$$

$$\log_2 \frac{16}{17} + \log_2 17 = \log_2 \frac{16 \cdot 17}{17} = \log_2 16 = \log_2 2^4 = \cancel{4 \log_2 2} = 4$$

$$= 4 \log_2 2 = 4$$

$$\lg 125 + 3 \lg 2 = \lg 125 + \lg 2^3 = \lg (125 \cdot 8) = \lg 1000 =$$

$$= \lg 10^3 = 3 \lg 10 = 3$$

$$\log_3 135 - \log_3 20 + 2 \log_3 6 = \log_3 135 - \log_3 20 + \log_3 6^2 =$$

$$= \log_3 \frac{135 \cdot 36}{20} = \log_3 243 = \log_3 3^5 = 5 \log_3 3 = 5$$