EXERCISE A

Write each equation in logarithmic form.

1) $5^4 = 625$

2) $7^{-2} = \dfrac{1}{49}$

3) $3^5 = 243$

Write each equation in exponential form.

4) $\log_3 81 = 4$

5) $\log_{36} 6 = \dfrac{1}{2}$

6) $\log_{125} 5 = \dfrac{1}{3}$

Evaluate each expression.

7) $\log_4 256$

8) $\log_2 \dfrac{1}{8}$

9) $\log_6 216$

Solve each equation. Check your solutions.

10) $\log_9 x = \dfrac{3}{2}$

11) $\log_{\frac{1}{10}} x = -3$

12) $\log_b 9 = 2$

Solve each inequality. Check your solutions.

13) $\log_4 x < 2$

14) $\log_3 (2x - 1) \leq 2$

15) $\log_{16} x \geq \dfrac{1}{4}$

EXERCISE B

Write each equation in exponential form.

16) $\log_5 125 = 3$

17) $\log_4 \dfrac{1}{4} = -1$

18) $\log_8 4 = \dfrac{2}{3}$

Write each equation in logarithmic form.

19) $3^3 = 27$ 20) $\left(\dfrac{1}{3}\right)^{-2} = 9$ 21) $2401^{\frac{1}{4}} = 7$

Evaluate each expression.

22) $\log_{12} 144$ 23) $\log_9 243$ 24) $\log_3 \dfrac{1}{81}$ 25) $\log_4 16^x$

Solve each equation. Check your solutions.

26) $\log_9 x = 2$ 27) $\log_{\frac{1}{7}} x = -1$ 28) $\log_b 64 = 3$

Solve each equation or inequality. Check your solutions.

29) $\log_2 c > 8$ 30) $\log_{64} y \le \dfrac{1}{2}$ 31) $\log_5 (x + 7) < 3$

32) $\log_2 (3x - 8) \ge 6$ 33) $\log_6 (2x - 3) = \log_6 (x + 2)$ 34) $\log_7 (x^2 + 36) = \log_7 100$

EXERCISE C
35) Prove the following statement is true: $\log_5 25 = 2\log_5 5$