1. Find t if $\log_9 t = -\frac{3}{2}$

2. Solve $3e^{\ln y} + 2\ln(e^y) = 10$

3. Solve $5^z = 4$ to 2 decimal places

4. Find the exact value of
   (a) $\log_4 64$ (b) $\log_a \sqrt{a}$

5. Solve $2^z = 5$ to 2 decimal places

6. Use the substitution $y = 3^x$ to solve the equation $3^{2x} - 3^x = 2$ to 3 significant figures.

7. Solve the equation $2(3^{2x}) + 5(3^x) - 3 = 0$ to 3 significant figures.

8. If $\log_5 x = 9$, find (without using a calculator) $\log_x 5$

9. If $\log_9 x = a$ and $\log_3 y = b$, express xy and $\frac{x}{y}$ as powers of 3.

   If $xy = 243$ and $\frac{x}{y} = 3$, calculate a and b.

#10. If $\lg 4 + 2\lg p = 2$, find p.

11. Find the values of x which satisfy the equation
    $4\log_3 x = 9\log_x 3$

12. Given that $y = \log_b 45 + \log_b 25 - 2\log_b 75$, express y as a single logarithm in base b.
    In the case when $b = 5$, state the value of y.

13. Solve the equation $\lg(1 - 2x) - 2\lg x = 1 - \lg(2 - 5x)$

14. Solve the equation $3^{y+1} = 4^y$

15. Solve the equation $2\lg(x + 2) + \lg 4 = \lg x + 4\lg 3$

16. Solve the equation $2^{2x} - 2^{x+3} + 7 = 0$

17. Given that $x = 3^y$, $y > 0$, express in terms of y
    (a) $\log_3 x$ (b) $\log_x 3$

18. Solve, for x, the equation $e^{2x} - 3e^x + 2 = 0$