

YOU MUST SHOW YOUR WORK ON SEPARATE PAPER.

Solve each logarithmic equation. Check for extraneous solutions.

1. $\log_3(7x - 13) = \log_3(5x + 10)$

2. $\log_2(x^2 - 6) = \log_2 5x$

Solve each exponential equation without a calculator.

3. $8^{5x} = 64^{\frac{1}{2}x-4}$

4. $8^{x+5} = 16^{x-1}$

5. $\left(\frac{1}{5}\right)^{2x-7} - 12 = 13$

Solve each exponential equation with a calculator.

6. $\left(\frac{4}{5}\right)^x + \frac{2}{3} = \frac{8}{3}9$

7. $4^x - 3.25 = 2.1$

8. $9^{2x} + 8 = 19$