

Chapter 3 Part B
Practice Test

1. Evaluate the expression $8^{\frac{4}{3}}$. Then write 1 or 2 sentences that describe how you could use mental math to evaluate the expression without using a calculator.

2. What is the relationship between logarithms and exponential functions?

3. Write $8^2 = 64$ in logarithmic form.

Write the following equation in exponential form.

4. $\log_4 2 = \frac{1}{2}$

5. Write a logarithmic or exponential equation that has no solution and briefly explain why this occurs.

Solve the following equations.

6. $2.5^x = 65.7$

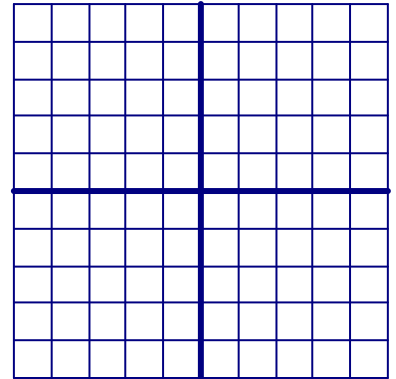
7. $\log_5 2x = \log_5 (3x - 4)$

8. $2\log_6 4 - \frac{1}{3}\log_6 8 = \log_6 x$

9. $7^{x-2} = 5^{3-x}$

10. Find the value of $\log_e 15$. Write the expression that you entered into your calculator to determine the answer.
11. You would like to find a bank account in which your money will double in 15 years. If the interest is compounded continuously, what must the interest rate be for that account?
12. A certain bacteria will triple in 6 hours. If you started with 5 bacteria, and you now have 2341, how much time has elapsed?

13. Graph the equation $f(x) = \log_2 x$ and its inverse by plotting points on the axes to the right. Be sure to label the graphs to signify the original from the inverse.



15. The formula $P_n = P \left[\frac{1-(1+i)^{-n}}{i} \right]$ is used by banks to compute the amount of a loan. Where P_n represents the loan amount, P the monthly payment, i the interest rate per payment, and n the number of payments.

Paul recently purchased a new home and had to take a loan out for \$85,000. If the loan was for 30 years at a 6% interest rate, what are his monthly payments?