

1. On page 152 the section begins with recalling the graphical solution to $10^t = 2500$ from Section 3.2. In a similar way, solve $10^t = -100$ graphically and explain the result, if any. Sketch graphs to support your reasoning.

- 2-6. Complete the blanks after reading the blue box on page 152.
 2. If x is a positive number, $\log x$ is the _____ of 10 that gives us x .
 3. This means that $10^{\log x} =$ _____.
 4. For example, because $10^{2.24} \approx 173.78$, then $\log 173.78 \approx$ _____ since the number _____ is the exponent we raise 10 to in order to get 173.78. (Both can be checked with a graphing calculator. You ought to do this.)
 5. In Example 2c in Section 4.1, we can write $10^{0.8} \approx 6.3096$ in exponential form: $\log(\text{_____}) \approx$ _____.
 6. In Example 3f, the expression $\log(-100)$ is the number we raise 10 to in order to get -100 . By your answer to Question 1 on this handout, what is the result?

7. On page 154, Section 4.1 Example 5, the section recalls the solution to the equation $100(2)^t = 337,000,000$ which was solved graphically in Section 3.3 Example 2 on page 125. This solution determines the date that the fine imposed on the city of Yonkers would have wiped out the city's entire annual budget. To which date does this solution correspond? (Read Example 3 p. 125 carefully)
 - Feb 14, 1988
 - August 2, 1988
 - August 21, 1988
 - August 22, 1988
 - August 24, 1988

8. Compare the box on page 154 titled **Properties of the Common Logarithm** with the box on page 155 titled **Properties of the Natural Logarithm**. Then choose the best answer.
 - The properties are the same, except where there is an e in the box on p.154, there is a **10** in the box on p. 155 and where there is an **ln** in the box on p.154, there is a **log** in the box on p. 155.
 - The properties are the same, except where there is a **10** in the box on p.154, there is an e in the box on p. 155 and where there is a **log** in the box on p.154, there is an **ln** in the box on p. 155.
 - After learning the properties of the common logarithm, you must learn entirely different properties for the natural logarithm.

9. On page 155 in Example 6a, what is the first step used to solve the equation $5e^{2x} = 50$?
 - Take natural logs of both sides
 - Divide both sides by 2
 - None of these

10. On page 156 the text compares $\log 5x^2$ and $2 \log 5x$. Are these the same for all positive x ?
 - Yes
 - No

11. Use a calculator as you did on page 156 of your text to find each to 3 decimal places:

$$\frac{\log 7}{5} \approx \boxed{} \quad \log \frac{7}{5} \approx \boxed{} \quad \frac{\log 7}{\log 5} \approx \boxed{}$$