# Functions: Moving the Bumps from Logs

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| 1. What is meant by a one-one function?<br><br>2. How can you verify that a function has an inverse? | 3. Does $y = f(x) = x^2$ have an inverse? Explain.<br><br>4. Does $y = f(x) = x^2 \; if \; x \geq 0$ have an inverse? Explain. |
| 5. Which is correct and why?<br>a. $a^s \cdot a^t = a^{st}$<br>b. $a^s \cdot a^t = a^{s+t}$ | 6. Compare and contrast the functions and graphs of $2^x \quad to \quad 2^{-x}$. |
| 7. What is the domain of the function:<br>$f(x) = log_{\frac{1}{2}}(x^2 - 2x + 1)$?<br>What information do you need to remember to properly state the domain of a logarithmic function? | 8. Find the exact answer without a calculator:<br>a. $log_2 1 =$<br>b. $log_{\sqrt{3}} 9 =$<br>c. $log_3 \frac{1}{9} =$ |
| 9. For $f(x) = -\ln(x - 1)$, determine:<br>a.) Domain:<br>b.) Range:<br>c.) Vertical Asymptote:<br>d.) X-intercept: | 10. A student completed the following. Can you find their mistake and provide them with the correct solution?<br>$\frac{2}{3} ln8 - \ln(3^4 - 8) = \quad ln8^{\frac{2}{3}} - \ln(12 - 8)$<br>$= \quad ln4 - ln4$<br>$= \quad 0$ |