

Main Ideas/Questions	Notes/Examples	
<p>What is a LOGARITHM?</p>	<p>A logarithm (log) is another way of writing exponents.</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-right: 20px;"> <p style="text-align: center;">Logarithmic Form</p> $\log_b a = x$ </div> <div style="font-size: 2em; margin-right: 20px;">→</div> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; margin-left: 20px;"> <p style="text-align: center;">Exponential Form</p> </div> </div> <p style="text-align: center; margin-top: 10px;">↶ Read as “log base b of a equals x.”</p>	
<p>Converting LOG ↔ EXP</p>	<p>Directions: Write each equation in exponential form.</p>	
	<p>1. $\log_3 9 = 2$</p>	<p>2. $\log_6 216 = 3$</p>
	<p>3. $\log_7 1 = 0$</p>	<p>4. $\log_2 16 = 4$</p>
<p>5. $\log_4 \frac{1}{16} = -2$</p>	<p>6. $\log_9 27 = \frac{3}{2}$</p>	
<p>Converting EXP ↔ LOG</p>	<p>Directions: Write each equation in logarithmic form.</p>	
	<p>7. $14^2 = 196$</p>	<p>8. $3^4 = 81$</p>
	<p>9. $12^1 = 12$</p>	<p>10. $36^{\frac{1}{2}} = 6$</p>
<p>11. $2^{-3} = \frac{1}{8}$</p>	<p>12. $8^{\frac{4}{3}} = 16$</p>	

<p>COMMON LOGARITHM</p>	<p>A logarithm with base 10 is called a common logarithm and can be written without the base.</p> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block;"> $\log_{10} x \rightarrow$ </div>	
<p>EVALUATING LOGARITHMS</p>	<p>Directions: Use your knowledge of exponents to evaluate the following logarithms.</p>	
	<p>13. $\log_7 49$</p>	<p>14. $\log_3 27$</p>
	<p>15. $\log 100$</p>	<p>16. $\log_{12} 1$</p>
	<p>17. $\log_2 64$</p>	<p>18. $\log_3 243$</p>
	<p>19. $\log_9 \frac{1}{81}$</p>	<p>20. $\log_{64} 4$</p>
<p>CHANGE OF BASE FORMULA</p> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-top: 10px; display: inline-block;"> Choose BASE 10 because there is a calculator button for it! \rightarrow </div>	<p>Some logarithms are not as easy to evaluate as those above, and will require the change of base formula.</p> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block; margin-top: 10px;"> $\log_b a =$ </div>	
	<p>Directions: Evaluate each log using the change of base formula.</p>	
	<p>21. $\log_{16} 64$</p>	<p>22. $\log_8 32$</p>
	<p>23. $\log_2 54$</p>	<p>24. $\log_{10} 294$</p>
	<p>25. $\log_4 136$</p>	<p>26. $\log_6 \frac{1}{36}$</p>