



6-3 Reteach to Build Understanding

Logarithms

1. The equation $y = \log_a x$ is written in logarithmic form and the equation $y = a^x$ is written in exponential form. But the two are connected in a really straightforward way. Identify the parts of the exponential form. Then, using the information in the diagram at the top of the table below, fill in for the logarithm form and solve.

Exponential form	Logarithm form ($\log_{\text{base}} = \text{result}$)	Solve (if applicable)
$4^3 = 64$		
Exponent: <u> 3 </u>		
Base: <u> </u>		
Result: <u> 64 </u>		
	$\log 64 =$ 	NA
$10^{x-1} = 1,000$		
Exponent: <u> </u>	$= x - 1$	
Base: <u> </u>		
Result: <u> </u>		
Exponent: <u> 2 </u>	$\log_{16} x = 2$	
Base: <u> </u>		
Result: <u> x </u>		

2. A bacterial culture starts with 100 bacteria and the number multiplies by ten every day according to the formula $B = 100(10)^t$, where B is the number of bacteria present after t days. Esteban is trying to find the value of t when the number of bacteria is 2,500. Find and correct his error in the solution below.

$$2,500 = 100(10)^t$$

$$25 = 10^t$$

$$\log_{10} t = 25$$

$$t = \frac{25}{10}$$

$$t = 2.5$$