Logarithmic Functions as Inverses

Warm-up: Solve the following equations.

1. $5^x = 25$
2. $2^x = 8$
3. $7^x = 7$
4. $4^x = 1$
5. $2^x = 5$

Logarithms

Logarithms are _____.

	Exponential Form	Logarithmic Form
1. Specific Example:		
2. General form:		

Examples: Write in Logarithmic Form

1. $5^2 = 25$
2. $3^6 = 729$
3. $10^0 = 1$
4. $\left(\frac{1}{2}\right)^3 = \frac{1}{8}$

Examples: Evaluate the following logarithms (_____)

5. $log_8 16$
6. $log_9 27$
7. $log_{10} 100$
8. $log_{64}\left(\frac{1}{32}\right)$

A ***common logarithm*** is a logarithm that uses base _____. You can write the common log as:

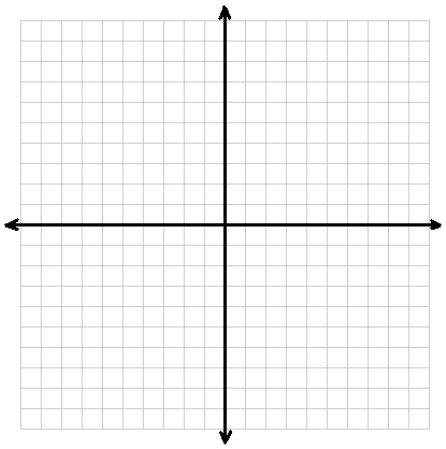
_____ or _____.

A logarithmic function is the inverse of the _____.

Graphing Logarithmic Functions

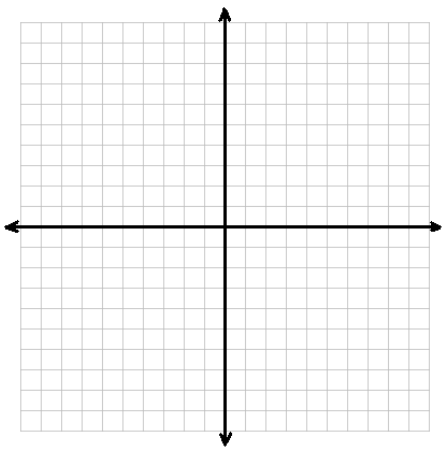
Graph $y = 2^x$:

x	-2	-1	0	1	2	3
y						



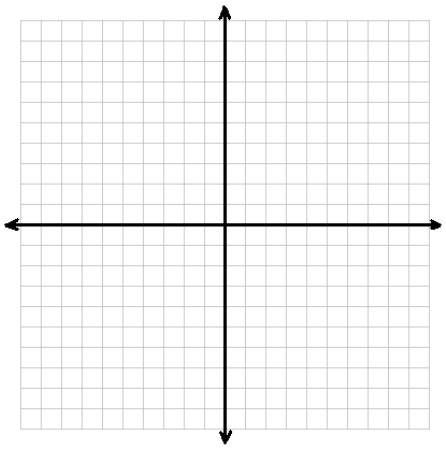
Graph $y = log_2 x$:

x						
y						



Examples: Describe the translations (shifts) and sketch the graph.

9. $y = log_6(x - 2) + 3$



10. $y = log_3(x + 4) - 1$