Investigating Properties of Logarithms Name:

Enter each expression into your calculator exactly as it appears on this handout and then use the pattern to "rewrite" those that cannot be evaluated with a calculator. All parts of the table should be completed.

1.

log (2*3)=	log(2) + log(3)=
log (4*2)=	log(4) + log(2)=
log (5*9)=	log(5) + log(9)=
log (2x)	
log (AB)	
	log(x) + log(y)

Conclusion: The log of a product equals the

_____.

2.

log (2/3)=	log(2) – log(3)=
log (4/2)=	log(4) – log(2)=
log (5/9)=	log(5) – log(9)=
$\log\frac{x}{2}$	
$\log\frac{A}{B}$	
	log(x) – log(y)

Conclusion: The log of a quotient equals the

_____.

3.

log (2^3)=	3*log(2)=
log (4^2)=	2*log(4)=
log (5^9)=	9*log(5)=
$\log x^2$	
$\log A^B$	
	x log(y)

Conclusion: The log of a power equals the

_____

4.

$\frac{\log(8)}{\log(2)} =$	$\log_2 8 =$
$\frac{\log(16)}{\log(4)} =$	$\log_4 16 =$
$\frac{\log(625)}{\log(5)} =$	$\log_5 625 =$
$\frac{\log\left(\frac{1}{9}\right)}{\log(3)} =$	$\log_3 \frac{1}{9} =$
$\frac{\log(3)}{\log(27)} =$ (Fraction)	$\log_{27} 3 =$
$\frac{\log(8)}{\log(4)} =$ (Fraction)	$\log_4 8 =$
$\frac{\log(2x)}{\log(4)}$	
	$\log_{2A} 3$
	$\log_x z$
$\frac{\log(A)}{\log(B)}$	

Conclusion: A logarithm can be evaluated by dividing the

_____.

5. Does your conclusion remain the same if you use natural log for #4 rather than log base 10? Use complete sentences in your explanation.