Evaluating Logarithms

1. Complete the following table.

Logarithmic Form	Exponential Form
$\log_2 32 = 5$	
$\log_3\left(\frac{1}{9}\right) = -2$	
$\log_4 64 = 3$	
	$5^2 = 25$
	$3^0 = 1$
	$4^{\frac{1}{2}} = 2$
$\log_b N = e$	

2. Evaluate.

a) $\log_2 8$ b) $\log_6 36$ c) $\log_3 \frac{1}{9}$ d) $\log_9 3$ e) $\log_{10} \frac{1}{1000}$

f) $\log_2 64$ g) $\log_3 27$ h) $\log 100$ i) $\log_{17} 17^5$ j) $\log_5 5$

k) $\log_6 1$ l) $8^{\log_8 64}$ m) $7^{\log_7\left(\frac{1}{49}\right)}$ n) $8^{\log_8 20}$

Properties of the Logarithmic Function