

## PRE-AP ALGEBRA 2

## 2B.5 CLASSWORK

1) Evaluate  $x$  without using a calculator.

a)  $x = \log_3 27$

b)  $x = \log_2 16$

a)  $3^x = 3^{\log_3 27}$ ,  $3^x = 27$ ,  $x = 3 \leftarrow$

b)  $2^x = 2^{\log_2 16}$ ,  $2^x = 16$ ,  $x = 4 \leftarrow$

2) Evaluate the logarithms with your calculator.

a)  $\log_3 2000$

b)  $\log_4 65$

a)  $\log_3 2000 = 6.9186 \leftarrow$

b)  $\log_4 65 = 3.0112 \leftarrow$

3) Evaluate the logarithms with your calculator.

a)  $\log 900$

b)  $\ln 1000$

a)  $\log 900 = 2.9542 \leftarrow$

b)  $\ln 1000 = 6.9078 \leftarrow$

4) Solve the equations for  $x$ .

a)  $14^x = 2500$

b)  $7^{2x-8} = 350$

a)  $\log_{14} 14^x = \log_{14} 2500$ ,

$x = \log_{14} 2500 = 2.9647 \leftarrow$

b)  $\log_7 7^{2x-8} = \log_7 350$ ,

$2x - 8 = \log_7 350$ ,

$2x = 8 + \log_7 350$

$x = \frac{1}{2} [8 + \log_7 350] = 5.5052 \leftarrow$

5) Solve the equations for  $x$ .

a)  $\log_4(7x - 8) = 4$

b)  $\ln(2x - 3) = 2$

c)  $\log(5x - 7) = 3$

a)  $4^{\log_4(7x-8)} = 4^4$

$7x - 8 = 4^4 = 256$

$7x = 264$

$x = 37 \frac{5}{7} \leftarrow$

b)  $e^{\ln(2x-3)} = e^2$

$2x - 3 = e^2$

$2x = e^2 + 3$

$x = \frac{1}{2} [e^2 + 3] = 5.1945 \leftarrow$

c)  $10^{\log(5x-7)} = 10^3$

$5x - 7 = 1000$

$5x = 1007$

$x = 201 \frac{2}{5} \leftarrow$