BECA / Huson / 11.1 IB Math SL Name:
14 November 2017

Homework: Practice calculating logarithms.
Answer on loose leaf paper. Use your calculator unless instructed otherwise.

1 Solve these equations giving answers to 3 sf where necessary.

a $e^x = 1.53$ **b** $e^x = 0.003$ **c** $e^x = 1$

d $e^x = \frac{1}{2}$ **e** $5e^x = 0.15$

2 Solve these equations giving answers to 3 sf where necessary.

a $10^x = 2.33$ **b** $10^x = 0.6$ **c** $10^x = 1$ **d** $10^x = \frac{1}{2}$

3 Find x if

a $\log x = 2$ **b** $\log x = -1$ **c** $\log x = 0$ **d** $\log x = -5.1$

4 Without using a calculator evaluate these expressions.

a $5^{\log_5 12}$ **b** $5^{\log_5 4}$ **c** $e^{\ln\sqrt{3}}$ **d** $e^{\ln 4}$

5 Without using a calculator evaluate these expressions.

a $\ln e^5$ **b** $\log 100$ **c** $\ln 1$ **d** $\ln e$ **e** $\ln \frac{1}{e^3}$

EXAM-STYLE QUESTIONS

6 Given that $f(x) = e^{2x-1}$ find $f^{-1}(x)$ and state its domain.

7 Given that $f(x) = e^{0.25x}$, $-2 \le x \le 4$, state the domain and range of f^{-1}

8 Given that $f(x) = \ln 3x$, $x > 0$, find $f^{-1}(x)$.

9 Given that $f(x) = \ln(x - 1)$, $x > 1$, and $g(x) = 2e^x$ find $(g \circ f)(x)$

Exercise 2K

1 The height of a ball t seconds after it is thrown is modeled by the function $h = 15t - 4.9t^2 + 3$, where h is the height of the ball in metres.

a Find the maximum height reached by the ball.

b For what length of time will the ball be higher than 12 metres?

Explain how $\left(3^{\frac{1}{5}}\right)^2$ can be written as the equivalent radical expression $\sqrt[5]{9}$.

The x-value of which function's x-intercept is larger, f or h? Justify your answer.

$f(x) = \log(x - 4)$

x	h(x)
−1	6
0	4
1	2
2	0
3	−2