**IB Math SL Year 1 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Review – Unit 3 Logs and Exponentials**

***Please use this review sheet in conjunction with the graded assignment AND the review exercises in the textbook.***

**Part I - NO GDC**

**1.** Rewrite in exponential form:  **2.** Solve for *w*: 

**3**. Evaluate:  **4.** Evaluate:  **5.** Evaluate: 

**6**. Condense into a single logarithm: **7.** Expand the logarithm:

a)  b) 

**8**. Write the function of the form  that goes through the points (0, 5) and (4, 20)

**9.** Let log10*P* = *x* , log10*Q* = *y* and log10*R* = *z*. Express  in terms of *x* , *y* and *z*.

|  |  |
| --- | --- |
| *Working:* |  |
|  | *Answer:*  .................................................................... |

(Total 4 marks)

**10.** Let *p* = log10 *x*, *q* = log10 *y* and *r* = log10 *z*.

Write the expression log10 in terms of *p*, *q* and *r*.

|  |  |
| --- | --- |
| *Working:* |  |
|  | *Answer*:  ………………………………………….. |

(Total 6 marks)

**11.** Given that log5 *x* = *y*, express each of the following in terms of *y*.

(a) log5 *x*2 (b) log5 (c) log25 *x*

|  |  |
| --- | --- |
| *Working:* |  |
|  | *Answers*:  (a) ..................................................................  (b) ..................................................................  (c) .................................................................. |

(Total 6 marks)

**Part II – GDC permitted**

**12**.  **13**.  **14.** 

**15.** **16.** 

Evaluate Solve graphically.

**17**.  **18.**

**19.** Solve the equation 43*x*–1 = 1.5625 × 10–2.

|  |  |
| --- | --- |
| *Working:* |  |
|  | *Answer:*  ...................................................................... |

(Total 4 marks)

**20.** A virus spreads according to N = N0e0.0345t where time is measured in days. If 10 people are currently infected, how long does it take for 100 people to be infected? SHOW ALL WORK.

1. At this time in 1995, Mr. Brooks deposited $2000 into an account at Wells Fargo that paid 4.7% interest compounded monthly.

a) How much money does he have in that account now?

b) What if it were compounded weekly instead?

1. What interest rate (still compounded monthly) would he need to have gotten in order to have $10,000 in the account now?
2. After years of “permanent floating”, Nathan Detroit is looking to finally settle down and open a gambling parlor in Atlantic City. If he has $10,000 to use as a down payment, can spend between $1100 and $1300 for monthly payments on a 30-year mortgage, and has a bank that will lend him the money at 7.2%, what is the range of prices that he can afford?
3. John contributes $50 per month into a Hoffbrau Fund that earns 15.5% annual interest. What is the value of his investment after 20 years?
4. Find Ms. Fischer’s quarterly payment if she wants to save $30,000 for her son’s college fund that he will need in fourteen years. Her account will pay 5.3% compounded quarterly.
5. What is Ella’s monthly payment for a 3 year $9000 car loan with a monthly interest rate of 10.25% from BB&T?