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

**Logs & Exponentials Quiz (24 marks, calculator active)**

**1.** A group of ten leopards is introduced into a game park. After *t* years the number of leopards, *N*, is modelled by *N* = 10 e0.4t.

(a) How many leopards are there after 2 years?

(b) How long will it take for the number of leopards to reach 100? Give your answers to an appropriate degree of accuracy.

Give your answers to an appropriate degree of accuracy.

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

(Total 4 marks)

**2.** Solve the following equations.

(a) ln (*x* + 2) = 3.

(b) 102*x* = 500.

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(Total 6 marks)

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

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

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

(Total 6 marks)

**4.** Solve the following equations:

(a) 9*x*–1 =  **(4)**

(b) $4^{x}-7\left(2^{x}\right)+12=0$. **(4)**

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(Total 8 marks)