

IB SL MATHEMATICS

REVIEW 4

NAME: _____

DATE: _____

1. Solve the equation $4^{3x-1} = 1.5625 \times 10^{-2}$.

Working:

Answer:

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(Total 4 marks)

2. Given that $p = \log_a 5$, $q = \log_a 2$, express the following in terms of p and/or q .

(a) $\log_a 10$

(b) $\log_a 8$

(c) $\log_a 2.5$

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(Total 6 marks)

3. Consider the infinite geometric sequence $3000, -1800, 1080, -648, \dots$.

(a) Find the common ratio.

(2)

(b) Find the 10^{th} term.

(2)

(c) Find the **exact** sum of the infinite sequence.

(2)

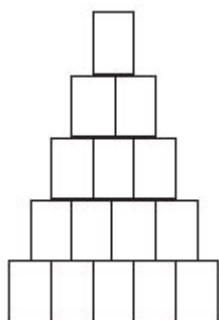
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(Total 6 marks)

4. Clara organizes cans in triangular piles, where each row has one less can than the row below. For example, the pile of 15 cans shown has 5 cans in the bottom row and 4 cans in the row above it.



(a) A pile has 20 cans in the bottom row. Show that the pile contains 210 cans.

(4)

(b) There are 3240 cans in a pile. How many cans are in the bottom row?

(4)

(c) (i) There are S cans and they are organized in a triangular pile with n cans in the bottom row. Show that $n^2 + n - 2S = 0$.

(ii) Clara has 2100 cans. Explain why she cannot organize them in a triangular pile.

(6)

(Total 14 marks)