BECA / Huson / 11.1 IB Math SL

Name:_____

4 April 2019

Do Now: Pre-Exam Sequences and Series

1. In an arithmetic sequence, the first term is 3 and the second term is 7.

   (a) Find the common difference. [2 marks]

   (b) Find the tenth term. [2 marks]

   (c) Find the sum of the first ten terms of the sequence. [2 marks]

2. The first three terms of an arithmetic sequence are _____.

   (a) Find the common difference. [2 marks]

   (b) Find the 30th term of the sequence. [2 marks]

   (c) Find the sum of the first 30 terms. [2 marks]

3. The first three terms of a geometric sequence are _____, _____, and _____.

   (a) Find the value of _____. [2 marks]

   (b) Find the value of _____. [2 marks]

   (c) Find the least value of n such that _____. [3 marks]

4. The first three terms of a geometric sequence are _____, _____, _____, for _____.

   (a) Find the common ratio. [3 marks]

   (b) Solve _____. [5 marks]

5. Consider a geometric sequence where the first term is 768 and the second term is 576. Find the least value of n such that the nth term of the sequence is less than 7. [6 marks]

Homework: Spicy IB Exam problems

   (a) Consider the following sequence of figures.
   Figure 1 contains 5 line segments.
   Given that Figure n contains 801 line segments, show that _____. [3 marks]

   (b) Find the total number of line segments in the first 200 figures. [3 marks]

6. An arithmetic sequence has the first term _____ and a common difference _____. The 13th term in the sequence is _____. Find the value of _____. [6 marks]

7. The first two terms of an infinite geometric sequence, in order, are _____, where _____.

   (a) Find _____. [2 marks]

(b) Show that the sum of the infinite sequence is _____. [2 marks]

(c) The first three terms of an arithmetic sequence, in order, are _____, where _____.
Find _____, giving your answer as an integer. [4 marks]

(d) Let S_{12} be the sum of the first 12 terms of the arithmetic sequence.
Show that _____. [2 marks]

(e) Given that S_{12} is equal to half the sum of the infinite geometric sequence, find _____, giving your answer in the form _____, where _____. [3 marks]