# **Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_ Block:\_\_\_\_\_\_**

# **IB Math Studies**

# **Sequence and Series IB Practice**

**Paper 1**

**1a.** The fourth term, *u*, of a geometric sequence is 135. The fifth term, *u*, is 101.25 .

Find the common ratio of the sequence.

***[2 marks]***

**1b.** Find *u*, the first term of the sequence.

***[2 marks]***

**1c.** Calculate the sum of the first 10 terms of the sequence.

***[2 marks]***

**2a.** In an arithmetic sequence, the fifth term, *u*, is greater than the first term, *u*. The difference between these terms is 36.

Find the common difference, *d*.

***[2 marks]***

**2b.** The tenth term of the sequence is double the seventh term.

(i) Write down an equation in *u* and *d* to show this information.

(ii) Find *u*.

***[4 marks]***

**3a.** The first term, , of an arithmetic sequence is . The fifth term, , of the sequence is .

Find the common difference of the sequence.

***[2 marks]***

**3b.** The  term, , of the sequence is .

Find the value of .

***[2 marks]***

**3c.** The  term, , of the sequence is .

Find , the sum of the first twenty terms of the sequence.

***[2 marks]***

**Paper 2**

*[15 total marks]*

**4a.** Consider the sequence  where



The sequence continues in the same manner.

Find the value of .

***[3 marks]***

**4b.** Find the sum of the first 10 terms of the sequence.

***[3 marks]***

**4c.** Now consider the sequence  where



This sequence continues in the same manner.

Find the exact value of .

***[3 marks]***

**4d.** Now consider the sequence  where



This sequence continues in the same manner.

Find the sum of the first 8 terms of this sequence.

***[3 marks]***

**4e.**

 is the smallest value of  for which  is greater than .

Calculate the value of .

***[3 marks]***