Maths AA IB_1

Test 3

Arithmetic or Geometric sequences & Series

Total : / 24

Wednesday 20.11.2024

Name:_____

Question 1 [4 marks]

An arithmetic sequence has a first term of 20 and a common difference of 13.

Identify which term is equal to 228. Find the sum of all the terms $20, 33, \ldots, 228$.

Question 2 [5 marks]

Consider the sequence, $S_n = 2n^2 - 3n$.

Find an expression for the general term, u_n, and show that this is an arithmetic sequence.

Question 3 [4 marks]

A geometric sequence has a second term of 14 and a sixth term of 224.

Find the possible values of the common ratio and the first term.

Question 4 [5 marks]

(a) Find the number of terms in the geometric series

$$1+3+9+27+\ldots +177147$$

(b) Calculate the sum of the series in part (a)

Question 5 [6 marks]

Sam invests 1700€ in a savings account that pays a nominal annual rate of interest of 2.74 %, compounded *half-yearly**.

(a) Find the amount that Sam will have in his account after 10 years.

David also invests 1700€ in a savings account that pays an annual rate of interest of $r\%$, compounded *yearly*.

(b) Find the value of r required so that the amount in David's account after 10 years will be equal to the amount in Sam's account.

* *compuesto semestral* 半年ごとの複合