Test - Sequences

Year: Year 10 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – The nth term

Non-calculator.

a. Find the nth term of 9, 13, 17, 21, ... (2 marks)
b. Is 150 a term of this sequence? Show how you decide. (2 marks)

Question 2 (4 marks)

Question 2 – Pattern problem

Rectangular tables are put in a row. One table seats 4 people, two tables seat 6 people and three tables seat 8 people.

a. Find a formula for the number of people who can sit at n tables. (2 marks)
b. How many tables are needed to seat 50 people? (2 marks)

Question 3 (4 marks)

Question 3 – Geometric sequence

The first three terms of a geometric sequence are 5, 15, 45.

a. Find the common ratio and the next two terms. (2 marks)
b. Find the 8th term. (2 marks)

Question 4 (4 marks)

Question 4 – Problem: savings

Lena saves £20 in week 1, £26 in week 2, £32 in week 3 and so on, in an arithmetic sequence. Calculator allowed.

a. Find the amount she saves in week n. (2 marks)

b. Find the total she has saved after 10 weeks. (2 marks)

Question 5 (4 marks)

Question 5 – Higher: quadratic sequence

Higher tier. Here are the first four terms of a sequence: 4, 11, 22, 37.

a. Show that it is a quadratic sequence. (1 mark)
b. Find the nth term. (2 marks)
c. Find the 15th term. (1 mark)