

PART 1 NO CALCULATOR

NAME: _____

16 marks

QUESTION 1 (4 marks)Consider the sequence $-2, 5, 12, \dots$

- (a) Show that the sequence is arithmetic.

(1 mark)

- (b) Find the formula for the general term.

(2 marks)

- (c) Find the tenth term.

(1 mark)

QUESTION 2 (3 marks)Insert three numbers between -8 and -40 so that all five numbers are in arithmetic sequence.

(3 marks)

QUESTION 3 (3 marks)

Consider the sequence $-32, 16, -8 \dots$

(a) Show that the sequence is geometric.

(1 mark)

(b) Find the formula for the general term.

(1 mark)

(c) Find the sixth term.

(1 mark)

QUESTION 4 (3 marks)

Insert two numbers between -8 and 64 so that all four numbers are in geometric sequence.

(3 marks)

QUESTION 5 (3 marks)

Find algebraically, the sum of the series $2 + 4 + 8 + \dots$ to 8 terms.

(3 marks)

PART 2 CALCULATOR

NAME: _____

26 marks

QUESTION 6 (3 marks)

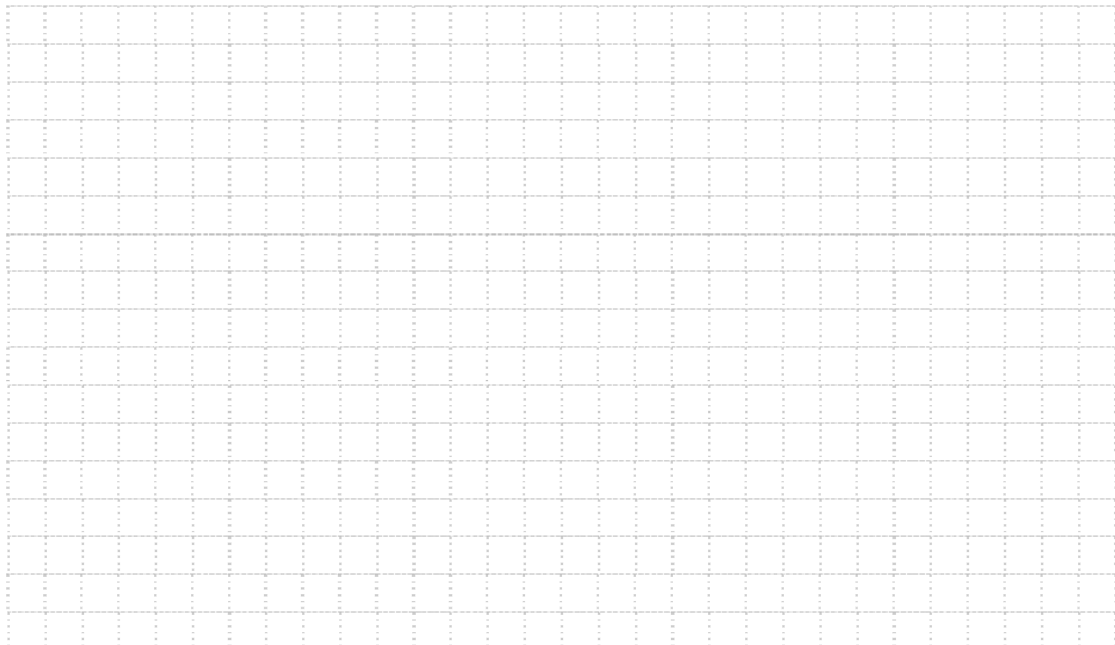
Given -3 , k and $(3k + 1)$ are 3 consecutive terms of an arithmetic sequence, determine k .



(3 marks)

QUESTION 7 (5 marks)

Given the terms of an arithmetic sequence, $t_8 = 37$ and $t_{25} = 122$ determine the general formula for this sequence.

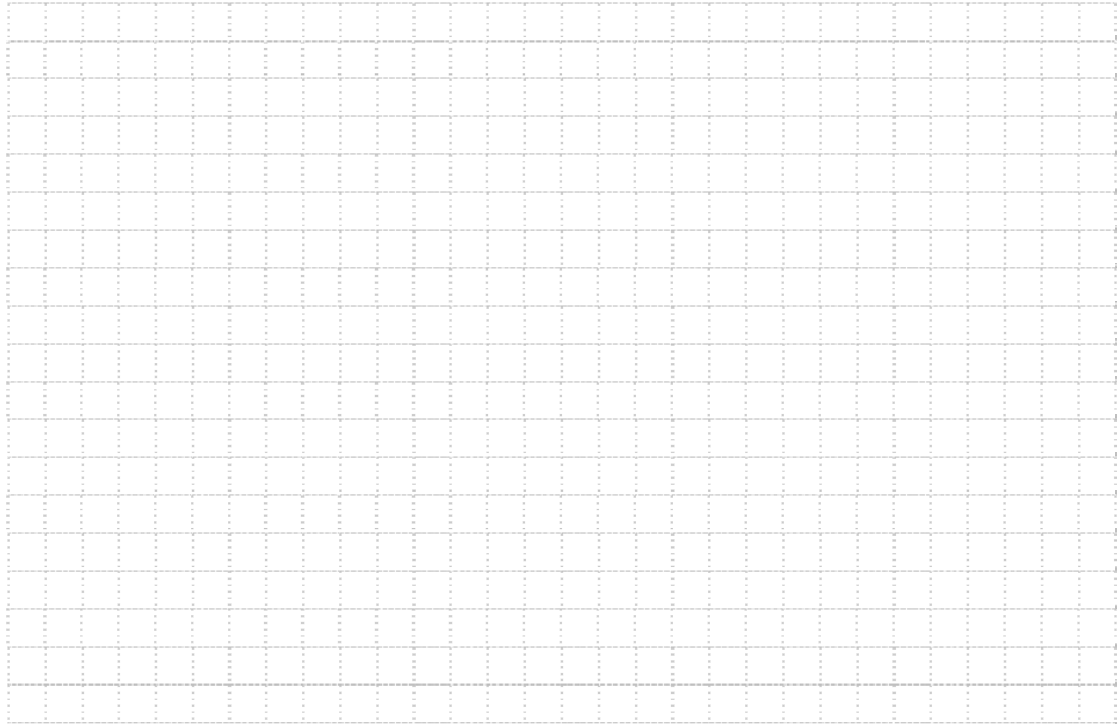


(5 marks)

QUESTION 8 (5 marks)

An arithmetic sequence starts 41, 37, 33

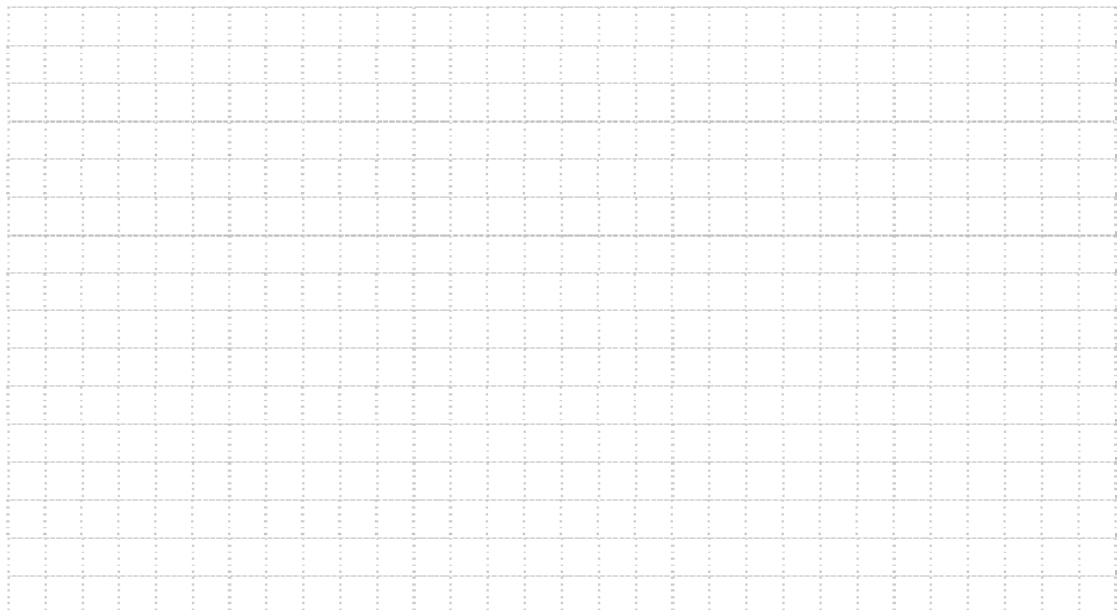
What is the largest term of the sequence above -200?



(5 marks)

QUESTION 9 (4 marks)

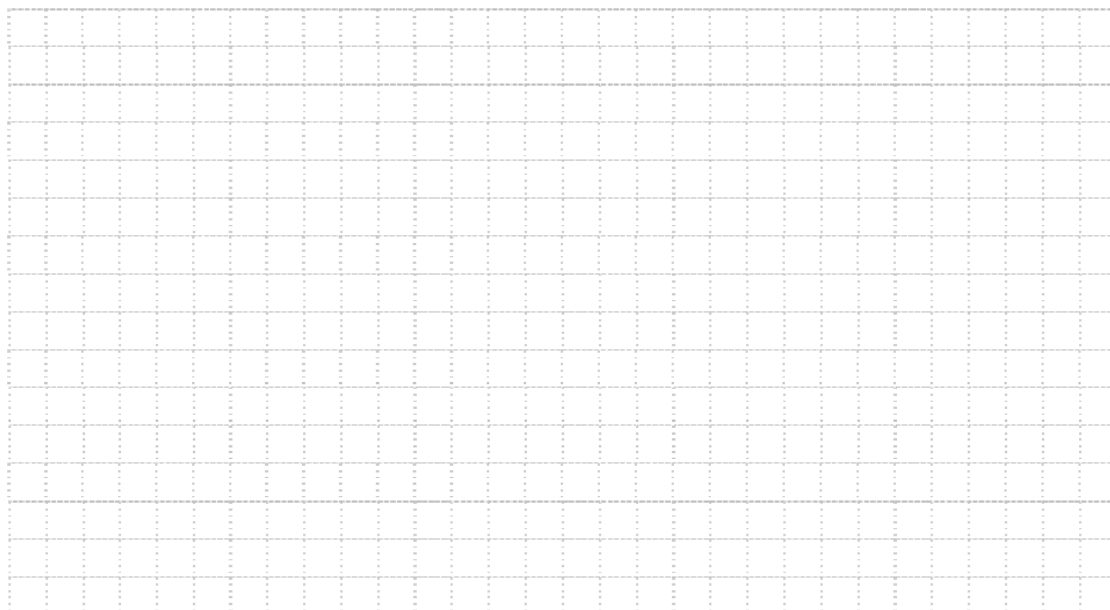
Find the general term t_n of a geometric sequence which has $t_8 = 384$ and $t_{15} = 49\,152$.



(4 marks)

QUESTION 10 (3 marks)

Given a geometric sequence has second term $t_2 = 6$ and $S_2 = 8$, find t_6 .



(3 marks)

QUESTION 10 (6 marks)

The sum of the first two terms of a convergent infinite geometric series is 13. The sum of the series is 49. Find the first term and the common ratio?



(6 marks)