



Maths
Leaving Certificate
Ordinary Level

Past exam questions on
Sequences and Series

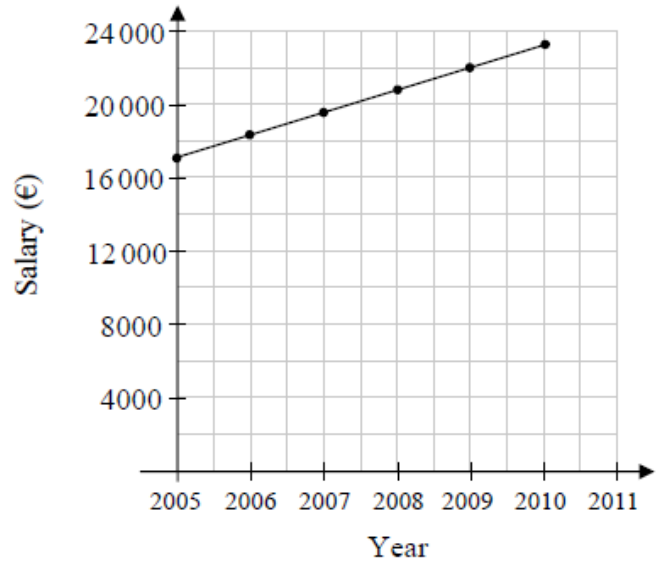
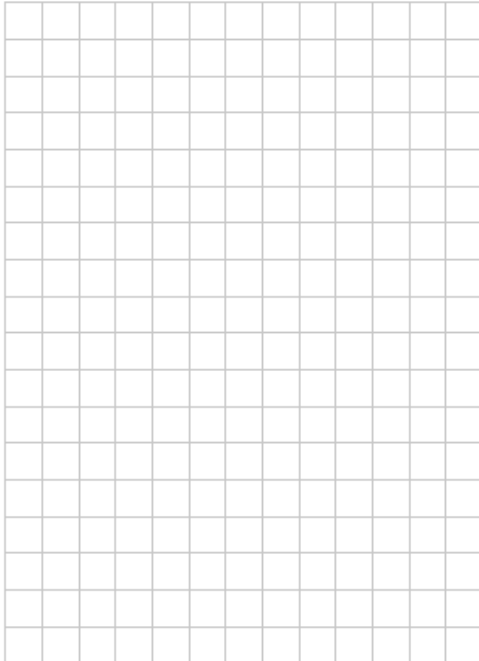
- (f) Find, in terms of n , a formula that gives the total amount earned by Peter from the first to the n^{th} year of the pattern.



- (g) Using your formula, or otherwise, find the total amount earned by Peter from the start of 2005 up to the end 2015.



- (h) Give one reason why the graph below is not an accurate way to represent Peter's salary over the period 2005 to 2011.



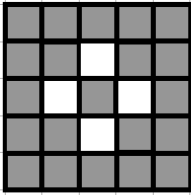
Q7 P1 2012 Sample

Question 7

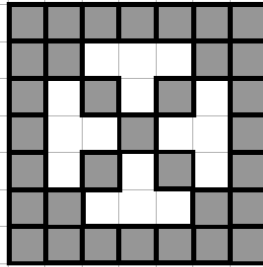
(50 marks)

Sile is investigating the number of square grey tiles needed to make patterns in a sequence. The first three patterns are shown below, and the sequence continues in the same way. In each pattern, the tiles form a square and its two diagonals. There are no tiles in the white areas in the patterns – there are only the grey tiles.

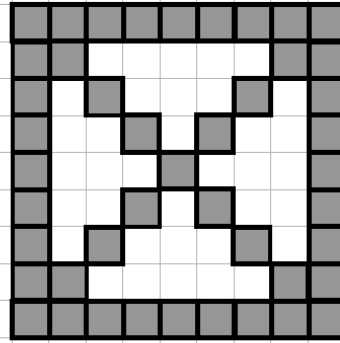
(Questions start overleaf.)



1st pattern



2nd pattern

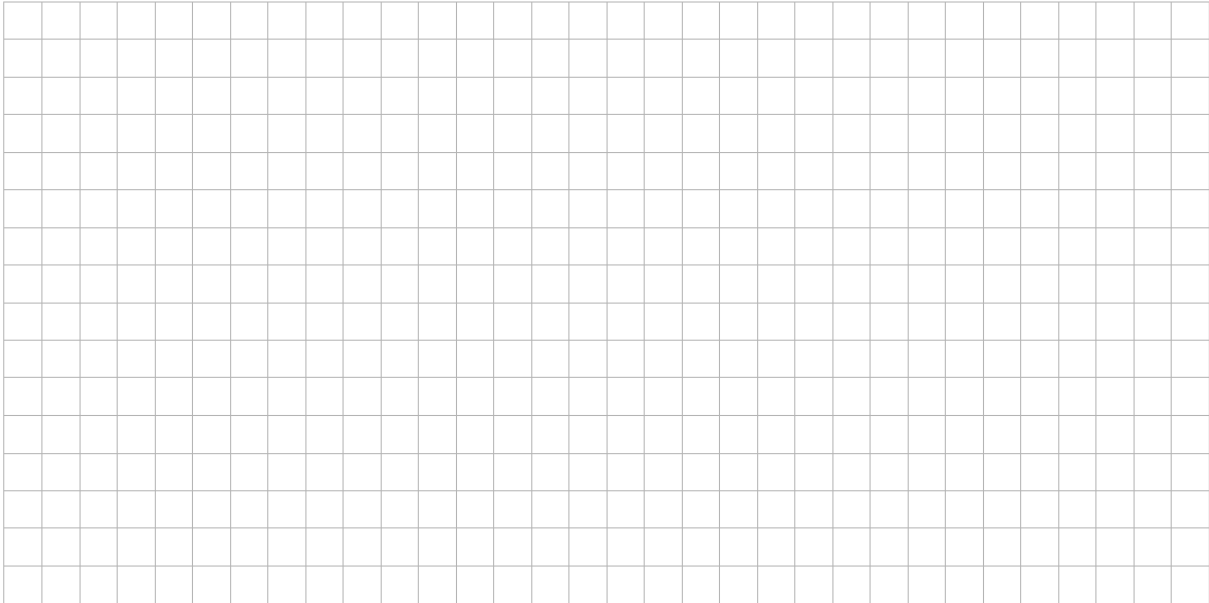


3rd pattern

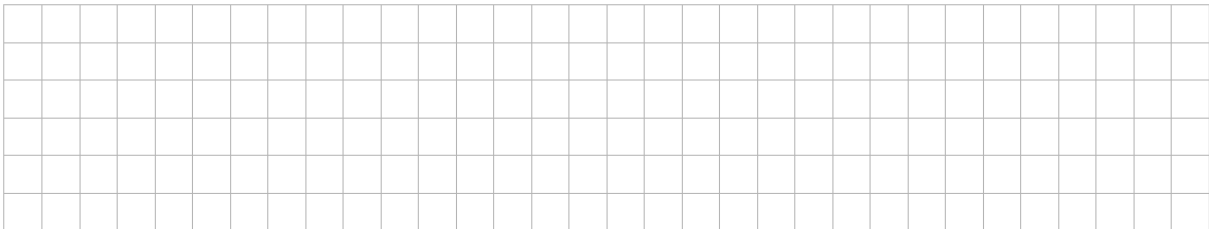
(a) In the table below, write the number of tiles needed for each of the first five patterns.

Pattern	1	2	3	4	5
No. of tiles	21	33			

(b) Find, in terms of n , a formula that gives the number of tiles needed to make the n th pattern.



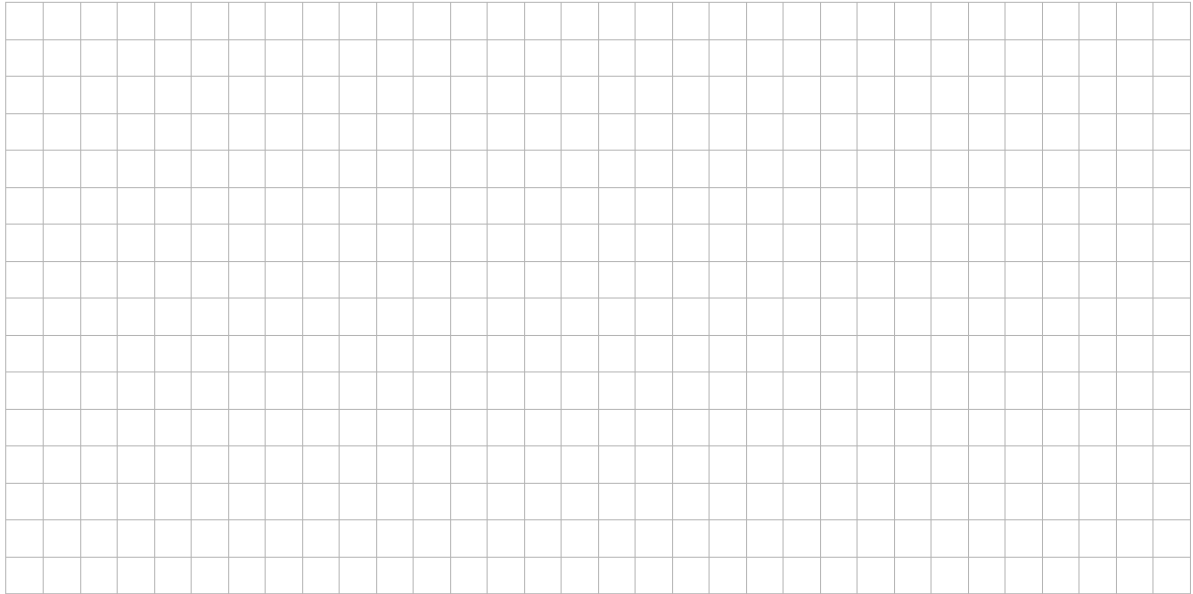
(c) Using your formula, or otherwise, find the number of tiles in the tenth pattern.



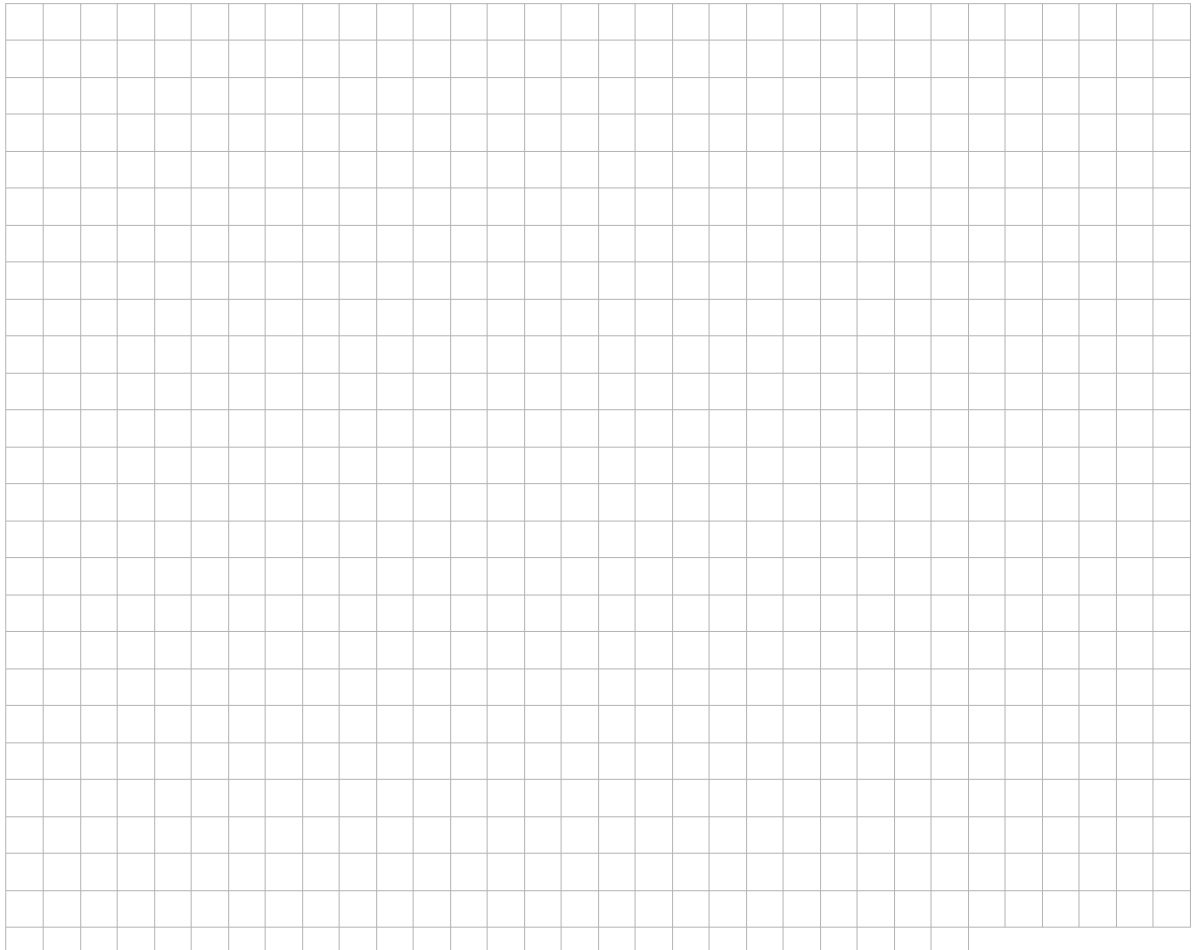
(d) Sile has 399 tiles. What is the biggest pattern in the sequence that she can make?



- (e) Find, in terms of n , a formula for the total number of tiles in the first n patterns.



- (f) Síle starts at the beginning of the sequence and makes as many of the patterns as she can. She does not break up the earlier patterns to make the new ones. For example, after making the first two patterns, she has used up 54 tiles, $(21 + 33)$. How many patterns can she make in total with her 399 tiles?

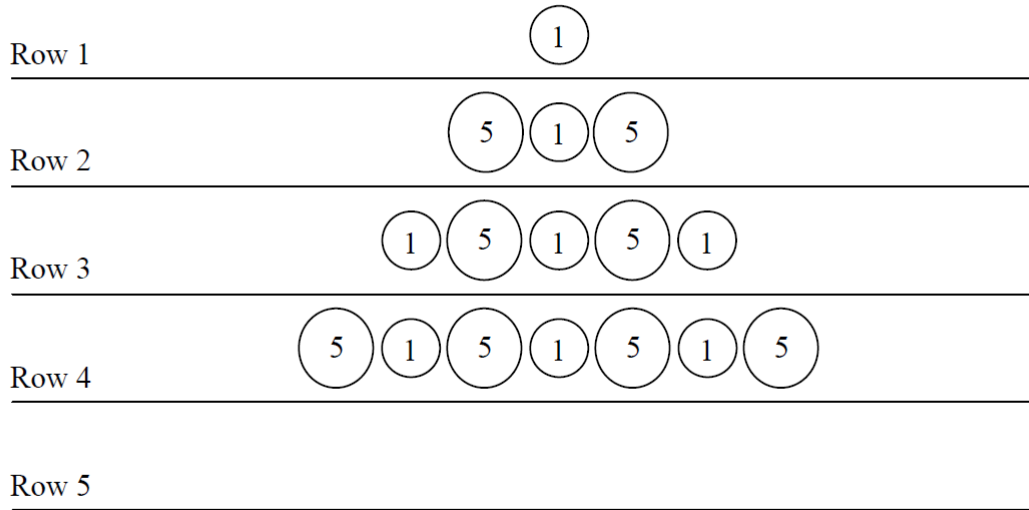


Question 8 2012 Paper 1`

Question 8

(50 marks)

Lucy is arranging 1 cent and 5 cent coins in rows. The pattern of coins in each row is as shown below.



(a) Draw the next row of coins above, continuing the same pattern.

(b) The table below gives the number of coins and the total value of the coins in each row. Complete the table for rows 4 to 7.

<i>Row number n</i>	<i>Number of 1 cent coins</i>	<i>Number of 5 cent coins</i>	<i>Total number of coins in the row</i>	<i>Total value of the coins in the row</i>
1	1	0	1	1
2	1	2	3	11
3	3	2	5	13
4				
5				
6				
7				

