

Edexcel (U.K.) Pre 2017

Questions By Topic

C1 Chap06 Series

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9. Ann has some sticks that are all of the same length. She arranges them in squares and has made the following 3 rows of patterns:

Row 1 □

Row 2 □□

Row 3 □□□

She notices that 4 sticks are required to make the single square in the first row, 7 sticks to make 2 squares in the second row and in the third row she needs 10 sticks to make 3 squares.

- (a) Find an expression, in terms of n , for the number of sticks required to make a similar arrangement of n squares in the n th row. (3)

Ann continues to make squares following the same pattern. She makes 4 squares in the 4th row and so on until she has completed 10 rows.

- (b) Find the total number of sticks Ann uses in making these 10 rows. (3)

Ann started with 1750 sticks. Given that Ann continues the pattern to complete k rows but does not have sufficient sticks to complete the $(k + 1)$ th row,

- (c) show that k satisfies $(3k - 100)(k + 35) < 0$. (4)

- (d) Find the value of k . (2)
