

Exercise 2015-9EC-00004(4)

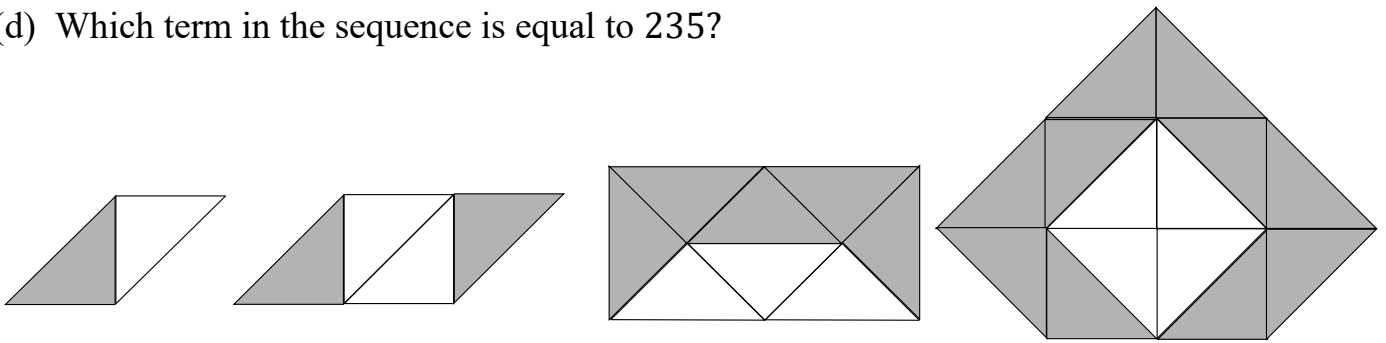
(1) Consider the following:

$$\begin{array}{rcll} 1 \times 8 + 1 & = & 9 & \text{[Number sentence 1]} \\ 12 \times 8 + 2 & = & 98 & \text{[Number sentence 2]} \\ 123 \times 8 + 3 & = & 987 & \text{[Number sentence 3]} \\ \downarrow & & & \\ \downarrow & & & \\ \downarrow & & & \end{array}$$

- (a) Complete the next six number sentences (up to number sentence 9) in the pattern above, without using a calculator.
- (b) Complete the sequence: 9 ; 98 ; 987 ;
- (c) Calculate the differences between the terms of the sequence in (b) and write these as a sequence.
- (d) Describe the pattern in (c) in words.
- (2) The fourth, seventh and twelfth terms of a sequence are respectively 4; 13 and 28.

- (a) Does this sequence have a constant difference? If so, what is the constant difference?
- (b) Complete the sequence from term 1 to term 10.
- (c) Determine T_n , the general term.
- (d) Which term in the sequence is equal to 235?

(3)



- (a) Write two sequences – one for the number of white triangles and one for the number of grey triangles.
- (b) Determine the number of white triangles and the number of grey triangles in pattern 8.
- (c) How many triangles will there be in pattern 12?