

QUESTION 2

The first four (4) terms of a quadratic pattern are: 11 ; 20 ; 33 ; 50 ; ...

2.1 Determine the general term of this pattern in the form $T_n = an^2 + bn + c$. (4)

2.2 Prove that the sum of the first n first-differences of this quadratic pattern can be given by $S_n = 2n^2 + 7n$. (2)

[6]

QUESTION 3

A convergent geometric series is given by: $\frac{5(x+1)}{3} + \frac{5(x+1)^2}{9} + \frac{5(x+1)^3}{27} + \dots$

3.1 Calculate the values of x . (3)

3.2 If $x = 1$, calculate the sum to infinity, S_∞ . (2)

[5]

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