Unit 26 — Mathematics for IT Practitioners

Assignment 2 — Probability, Sequences, Number Systems and Statistics

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1 Introduction

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2 Series and Sequences and Probability

2.1 17th and nth term

Find a formula for the nth term of this sequence and find the 17th term using your nth term formula. Also calculate the sum of the first 17 terms of this sequence.

$$-3, 1, 5, 9, 13, \ldots$$

To start off with I will need to find the difference between the numbers in the sequence that I have been given because I believe that this is a linear progression and this will get half the answer for me. Looking at the numbers, each number is 4 more than the previous one...

$$\overbrace{-3, 1}^{+4} \quad \overbrace{1, 5}^{+4} \quad \overbrace{5, 9}^{+4} \quad \overbrace{9, 13}^{+4}$$

Now that I know the distance from each number to the next, I can then formulate the initial equation to be

$$n = 4x + ?$$

so now I just need to work out what the "?" will be. Now, for the first term the x value will be zero and so we would have 0 as the value, but the first value

2.2 Find the sum

$$\sum_{r=1}^{6} (3r - 2r^2 + r^3)$$

3 Number Systems

4 Number Systems calculations

5 Number Systems calculations

6 Recursion

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8 Network Planning

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