

ECE335 Summer 2019 - Lecture 16 Examples

Example 1: Prove that for $x \neq 1$, $1 + x + x^2 + \dots + x^n = \frac{x^{n+1}-1}{x-1}$.

Step 1: Write the induction given closed form for n

Step 2: Show the induction given is true for a base case

Step 3: Write the induction goal closed form for $n + 1$

Step 4: Assume the induction formula from step 1 is true and substitute the closed form solution into step 3

Step 5: Perform any necessary algebra to show the closed form solution from step 3 for $n + 1$