

Assignment-1

EE:1205 Signals and Systems
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Question:

Two APs have the same common difference. The difference between their hundredth terms is 100. What is the difference between their thousandth terms?

Solution:

Parameter	Value
Difference between 100 th terms	100

TABLE 0
PARAMETER TABLE

let a and b be the first term of the 2 APs and d be the common difference

$$as : x(n) = x(0) + nd \quad (1)$$

$$a(100) = a + 100d \quad (2)$$

$$b(100) = b + 100d \quad (3)$$

$$a(100) - b(100) = (a + 100d) - (b + 100d) = a - b \quad (4)$$

$$a - b = 100(given) \quad (5)$$

Now:

$$a(1000) - b(1000) = (a + 1000d) - (b + 1000d) = a - b = 100$$

Therefore difference between 1000th terms=100