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Module 6 : Recurrence Relations (?q=onlinecourse/course/43519)

Recurrence Relations II

- **วิชชาภัทร จินดานาถ** previously submitted answers to this quiz/test on 27-Oct-2023 @ 01:07:25 and obtained **8** correct answers out of **8** .
- This test/quiz can be taken many times.
- Correct answers will NOT be revealed after submission.

undefined

1   Given $a_n = 3a_{n-2} + 2a_{n-3}$ for $n \geq 3$ with the initial conditions $a_0 = 3,\ a_1 = 1$, and $a_2 = 4$.

Let r_1 and r_2 be the answers of the characteristic equation where $r_1 < r_2$. Find r_1 and r_2
From previous attempt
respectively.

–1, 1

–1, 2

1, 1

1, 2

2   From a_n, r_1, and r_2 in question 1, if the unique solution is in the form of $a_n = A(r_1)^n + B(r_2)^n$
.

Solve for the unique equation to find A and B respectively.
From previous attempt

2–n, 1

2–n, 2

n–2, 1

n–2, 2

3   The solution of the recurrence relation $a_n = 2a_{n-1} + 3^n$ for $n \geq 2$ and $a_1 = 5$

   The recurrence relation is in the form of $a_n = k2^n + p3^n - qn$ *From previous attempt*

   Find k

      -2

      0

      2

      3

4   The solution of the recurrence relation $a_n = 2a_{n-1} + 3^n$ for $n \geq 2$ and $a_1 = 5$

   The recurrence relation is in the form of $a_n = k2^n + p3^n - qn$ *From previous attempt*

   Find p

      0

      1

      2

      3

5   The solution of the recurrence relation $a_n = 2a_{n-1} + 3^n$ for $n \geq 2$ and $a_1 = 5$

   The recurrence relation is in the form of $a_n = k2^n + p3^n - qn$ *From previous attempt*

   Find q

      1

      2

      -1

      0

7   Let a_n be a recurrence relation for the number of ways to climb n stairs if the person climbing the stairs can take one or two stairs at a time

Let's recurrence relation of $a_n = Aa_{n-1} + Ba_{n-2}$							*From previous attempt*

Find (A, B)

(1,2)

(1,1)

(1,0)

(0,1)

8   If the unique solution is in the form $a_n = M(\dfrac{1+\sqrt{P}}{2}) + N(\dfrac{1-\sqrt{P}}{2})$

From previous attempt

Find P

2

3

4

5

9   If the unique solution is in the form $a_n = M(\dfrac{1+\sqrt{P}}{2})^n + N(\dfrac{1-\sqrt{P}}{2})^n$

From previous attempt

Find $M^2 + N^2$

0

0.2

0.6

1

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❮ Previous (?
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