

ພາກທີ2: ອັນດັບ, ຜົນບວກ ແລະ ການນຳໃຊ້

ບົດທີ3: ອັນດັບຈຳນວນ

I. ນິຍາມຂອງອັນດັບຈຳນວນ

ຕຳລາທີ່ມີເຂດກຳນົດແມ່ນກຸ່ມຈຳນວນຖ້ວນບວກທີ່ເອີ້ນວ່າ: ອັນດັບຈຳນວນ, ສັນຍະລັກດ້ວຍ: $\{a_n\}$
ແທນດ້ວຍ $a_1; a_2; \textcircled{a_3} \dots a_n$ ແລ້ວເອີ້ນ a_1 ແມ່ນພົດທີ 1, a_n ແມ່ນພົດທີ n ຫຼື ພົດທີ່ໄປຂອງອັນດັບ $\{a_n\}$

❖ ການສະເໜີອັນດັບດ້ວຍຫຼາຍຮູບແບບດັ່ງຕໍ່ໄປນີ້: ໓ ໒໒໒

- ດ້ວຍການຂຽນ 3 ຫຼື 4 ພົດທຳອິດ: 1, 3, 5, 7,

- ດ້ວຍການຂຽນພົດທີ່ໄປ: $\{a_n\}$ ເຊິ່ງ $a_n = 2^n + 1$ ✓

- ດ້ວຍເສັ້ນສະແດງເຊິ່ງແມ່ນເສັ້ນສະແດງຂອງຕຳລາບໍ່ຕໍ່ເນື່ອງ ✓

II. ການຊອກຫາພົດຕ່າງໆຂອງອັນດັບ

1. ຈົ່ງຊອກຫາ 6 ພົດທຳອິດຂອງອັນດັບ $\{a_n\}$ ທີ່ກຳນົດໃຫ້ດັ່ງລຸ່ມນີ້:

$$\begin{aligned} \text{ກ. } a_n &= (-1)^n + 2^{n+1} \\ a_1 &= (-1)^1 + 2^{1+1} = -1 + 2^2 = -1 + 4 = 3 \\ a_2 &= (-1)^2 + 2^{2+1} = 1 + 2^3 = 1 + 8 = 9 \\ a_3 &= (-1)^3 + 2^{3+1} = -1 + 2^4 = -1 + 16 = 15 \\ a_4 &= (-1)^4 + 2^{4+1} = 1 + 2^5 = 1 + 32 = 33 \\ a_5 &= (-1)^5 + 2^{5+1} = -1 + 2^6 = -1 + 64 = 63 \\ a_6 &= (-1)^6 + 2^{6+1} = 1 + 2^7 = 1 + 128 = 129 \end{aligned}$$

ໂອ້ໆໄດ້ 6 ພົດທຳອິດຂອງ $\{a_n\}$: 3, 9, 15, 33, 63, 129

ຂ. $a_n = 2 - \frac{1}{n}$

$$\begin{aligned} a_1 &= 2 - \frac{1}{1} = 2 - 1 = 1 \\ a_2 &= 2 - \frac{1}{2} = \frac{2 \cdot 2 - 1}{2} = \frac{4 - 1}{2} = \frac{3}{2} \\ a_3 &= 2 - \frac{1}{3} = \frac{2 \cdot 3 - 1}{3} = \frac{6 - 1}{3} = \frac{5}{3} \end{aligned}$$

$$a_4 = 2 - \frac{1}{4} = \frac{2 \cdot 4 - 1}{4} = \frac{8 - 1}{4} = \frac{7}{4}$$

$$a_5 = 2 - \frac{1}{5} = \frac{2 \cdot 5 - 1}{5} = \frac{10 - 1}{5} = \frac{9}{5}$$

$$a_6 = 2 - \frac{1}{6} = \frac{2 \cdot 6 - 1}{6} = \frac{12 - 1}{6} = \frac{11}{6}$$

ໄດ້ 6 ພຶດທຳອິດຂອງ $\{a_n\}$: $1, \frac{3}{2}, \frac{5}{3}, \frac{7}{4}, \frac{9}{5}, \frac{11}{6}$

ຄ. $a_n = \frac{n}{2n-1}$

ງ. $a_n = n + (-2)^{n-1}$

ໄດ້ ພຶດທຳອິດຂອງ

2. ຈົ່ງຊອກຫາ 6 ພຶດທຳອິດຂອງອັນດັບ $\{b_n\}$ ທີ່ກຳນົດໃຫ້ດັ່ງລຸ່ມນີ້:

ກ. $a_n = n + 1, b_n = a_{2n+1} - 2$

a_n ກັບ b_n

$$b_1 = a_{2 \cdot 1 + 1} - 2 = a_3 - 2 \quad | \quad a_3 = 3 + 1 = 4$$

$$b_1 = 4 - 2 = 2 //$$

$$b_2 = a_{2 \cdot 2 + 1} - 2 = a_5 - 2 = 5 - 2 = 3 //$$

$$b_2 = 4 //$$

$$b_3 = a_{2 \cdot 3 + 1} - 2 = a_7 - 2 = 7 - 2 = 5 //$$

$$b_3 = 6 //$$

$$b_4 = a_{2 \cdot 4 + 1} - 2 = a_9 - 2 = 9 - 2 = 7 //$$

$$b_4 = 8 //$$

$$b_5 = a_{2 \cdot 5 + 1} - 2 = a_{11} - 2 = 11 - 2 = 9 //$$

$$b_5 = 10 //$$

$$b_6 = a_{2 \cdot 6 + 1}^{-2} = a_{12+1}^{-2} = a_{13}^{-2} = 14 - 2 \quad | \quad a_{13} = 13 + 1 = 14$$

$$b_6 = 12 \quad \checkmark$$

วิธีที่ 6 พิจารณาจาก 29 b_n : 2, 4, 6, 8, 10, 12

2. $a_n = -n, \quad b_n = (a_{2n})^2 + 1$

3. $a_n = n, \quad b_n = a_{3n} - 4$