

وَقَدْ بَيَّنَّتُ دُونَ طَرِيقَ سَبْعَ زِيَادَاتٍ

سَبْعَ زِيَادَاتٍ

$$\begin{aligned} n=n &\rightarrow f(-n) - n f(n) = 2|n| + 1 \cdot x - n \rightarrow -n f(-n) + n^2 f(n) = 2|n| - n \\ n=-n &\rightarrow f(n) + n f(-n) = 2|n| + 1 \\ \rightarrow n^2 f(n) + f(n) &= -2|n| - n - 2|n| + 1 \rightarrow f(n) = \frac{-2|n| - n + 2|n| + 1}{n^2 + 1} \end{aligned}$$

(2)

$$n \geq 0 \rightarrow \frac{-2n^2 - n + 2n + 1}{n^2 + 1} \rightarrow f(n) = \frac{-2n^2 + n + 1}{n^2 + 1}$$

نِسْبَة

$$n < 0 \rightarrow \frac{2n^2 - n - 2n + 1}{n^2 + 1} \rightarrow f(n) = \frac{2n^2 - 3n + 1}{n^2 + 1}$$

$$f(n) + f(0) = n^2 - 3n + 4 \quad n=0 \rightarrow 2f(0) = 0 - 0 + 4 \rightarrow 2f(0) = 4 \rightarrow f(0) = 2$$

(2)

$$f(n) + 3 = n^2 - 3n + 4 \rightarrow f(n) = n^2 - 3n + 1 \quad n=n^2 \rightarrow f(n^2) = (n^2)^2 - 3(n^2) + 1$$

$$f(n^2) = n^4 - 3n^2 + 1$$

$$y = \frac{n^2 + n + 1}{n - 1} \rightarrow y n - y = n^2 + n + 1 \rightarrow y n - n = n^2 + 1 + y \rightarrow n(y - 1) = n^2 + 1 + y \rightarrow n^2 - (y - 1)n + (y + 1) = 0$$

$$\Delta = (y - 1)^2 - 4(y + 1) \rightarrow n = \frac{(y - 1) \pm \sqrt{(y - 1)^2 - 4(y + 1)}}{2} \rightarrow (y - 1)^2 - 4y - 4 \geq 0 \rightarrow y^2 - 6y - 3 \geq 0 \rightarrow (y - 3 - \sqrt{12})(y - 3 + \sqrt{12}) \geq 0$$

$$\rightarrow \frac{-1}{+} \frac{1}{-} \frac{1}{+} \rightarrow R_y = (-\infty, -1] \cup [3 + \sqrt{12}, +\infty)$$

$$y = 2n^2 - 3n + 1 \rightarrow n_{\text{ext}} = \frac{3}{4} \rightarrow y_{\text{ext}} = \frac{2 \times \frac{9}{16} - 3 \times \frac{3}{4} + 1}{\frac{9}{16}} = \frac{\frac{9}{8} - \frac{9}{4} + 1}{\frac{9}{16}} = \frac{-\frac{1}{8}}{\frac{9}{16}} = -\frac{2}{9}$$



(2)

$$\rightarrow R_y = [-\frac{2}{9}, +\infty)$$

$$y = \sqrt{-n^2 + 4n - 4} \quad -n^2 + 4n - 4 = 0 \rightarrow y_{\text{ext}} = \frac{4 - 2}{2} = 1 \rightarrow R_y = (-\infty, 1] \rightarrow R_y = [0, 1]$$

$y = \sqrt{n^2 - 3n^2 + 4n + 1}$ $\Rightarrow P_y = \sqrt{1R}$ $\Rightarrow P_y = [0, +\infty)$ ✓

$y = \log_j (n^2 - 4n^2 + 7n + 4) \Rightarrow \log_j 1R \Rightarrow y = \log_j (0, +\infty) \Rightarrow P_y = 1R$ ✓

$y = \frac{3n+1}{2n-4}$ $\xrightarrow{R=1R-\{2\}}$ $P_y = 1R - \{2\}$ ✓

$y = \sqrt{\frac{4n+1}{n-2}}$ $\Rightarrow R_y = \sqrt{1R - \{2\}}$ $\Rightarrow R_y = [0, +\infty)$ ✓

$R = 1R - \{2\}$

$y = \frac{n^2+3}{\sqrt{n^2+3}}$ $\Rightarrow y = \sqrt{n^2+3} + \frac{1}{\sqrt{n^2+3}}$ $\Rightarrow P_y = [\sqrt{3} + \frac{1}{\sqrt{3}}, +\infty)$ ✓

$y = n^2 + \frac{1}{n^2+3}$ $\Rightarrow n^2 + \frac{1}{n^2+3} + \epsilon \Rightarrow \frac{n^2+3}{n^2+3} + \frac{1}{n^2+3} + \epsilon \Rightarrow \frac{n^2+3}{n^2+3} + \frac{1}{n^2+3} + \epsilon \geq \frac{1}{3} + \epsilon$

$\Rightarrow P_y = [\frac{1}{3}, +\infty)$ ✓

$y = \frac{3n^2+3}{n^2-1}$ $\Rightarrow y \cdot n^2 - y = 3n^2 + 3 \Rightarrow y \cdot n^2 - 3n^2 = y + 3 \Rightarrow n^2(y-3) = y+3 \Rightarrow n^2 = \frac{y+3}{y-3}$

$\Rightarrow n = \sqrt{\frac{y+3}{y-3}}$ $\Rightarrow P_y = (-\infty, -3] \cup (3, +\infty)$ ✓

$y = \frac{3n^2+3}{n^2-1}$ $\xrightarrow{n^2=0 \rightarrow \frac{3}{-1} = -3}$ $\xrightarrow{n^2 \rightarrow \infty \rightarrow \frac{3}{1} = 3}$ $\Rightarrow P_y = (-\infty, -3] \cup (3, +\infty)$ ✓

$f(n) = \frac{2 \sin n + 3}{\sin n - 3}$ $\xrightarrow{\sin n = 1}$ $f(n) = \frac{2+3}{1-3} = -\frac{5}{2}$

$\xrightarrow{\sin n = -1}$ $f(n) = \frac{2-3}{-1-3} = \frac{1}{4}$

$\Rightarrow P_f = [-\frac{5}{2}, \frac{1}{4}]$ ✓

$$y_n = \left| \frac{u_{n-1}}{r_n} \right|$$

تابع هموار است



$$\frac{y_{n-1}}{y_n}$$



$$\frac{u_{n-1}}{u_n}$$

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$\frac{\mu}{\kappa}$ سے متعلق

①

$$P_g = [0, 1] \leftarrow$$

$$g = \sqrt{\frac{9n-11}{-1+kn}}$$

$$\rightarrow g = \sqrt{\frac{a(n-r)}{r(-r+n)}}$$

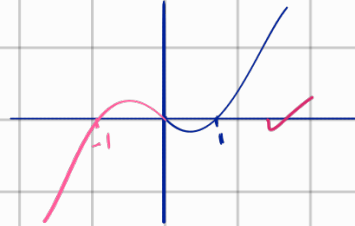
$$\Rightarrow y = \sqrt{\frac{a}{\epsilon}} \Rightarrow y$$

$$= \frac{E}{\lambda} \Rightarrow P_g = \left\{ \frac{E}{\lambda} \right\}$$

$$\Rightarrow P_{\text{Ly}} = \left\{ \frac{1}{2} \right\}$$

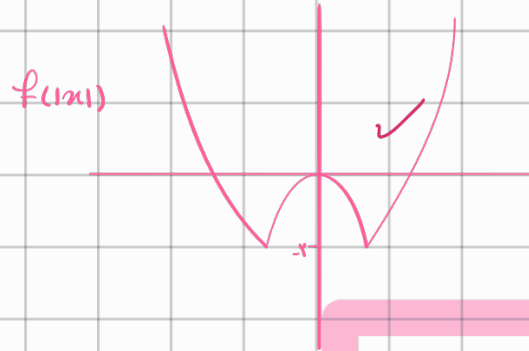
$\rightarrow$

$$g = x|x| - vx \rightarrow \begin{cases} x^2 - vx & x \geq 0 \\ -x^2 - vx & x < 0 \end{cases}$$



$$R_{Tj} = IR$$

$\gamma \leftarrow \Delta$



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$$y = |f(x) + 1|$$

