

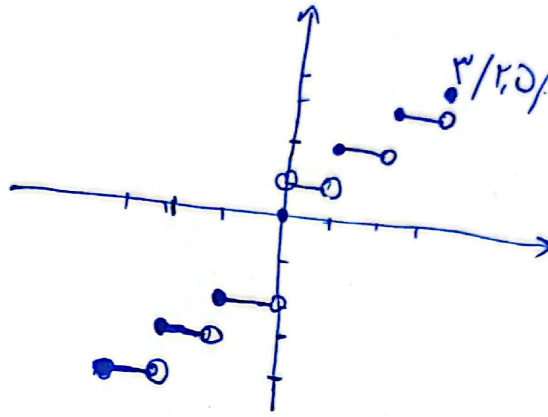
(1)

الف) $f(x) = 2 \sin^2(x + \frac{\pi}{4}) + (-1)$ $\xrightarrow{\text{بین اداء بستہ}} R_f = [-1, -1]$

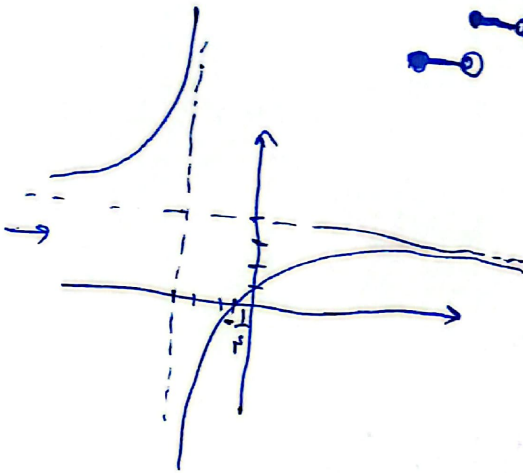
ب) $g(x) = 3 \cos^3 x - 4$ $\xrightarrow{\text{بین اداء بستہ}} R_g = [-7, -1]$

(2) تابع عددی رسم

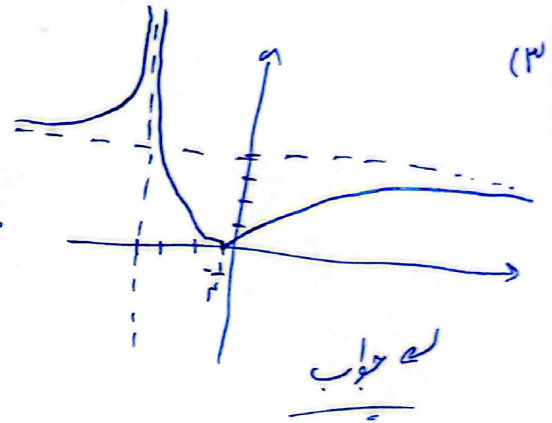
له مثلا: $3/2.0 / \dots / -1.0 / -2 / -2.0 / -3$



ابتدا هموارانید
بدین قدر مطلق
را رسم می کنیم



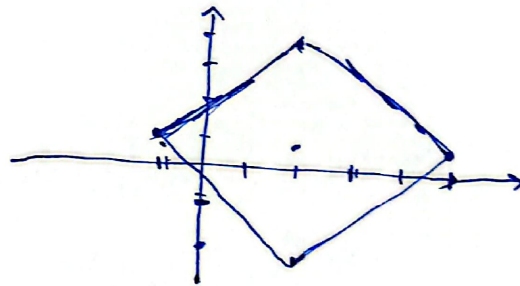
حالا قدر مطلق
را روی شکل اثر می دهیم



له جواب

(3)

$y = -x$ $x \leq 2 / y \leq 1$	$y = x - 4$ $x \geq 2 / y \leq 1$	$y = x + 2$ $x \leq 2 / y \geq 1$	$y = -x + 4$ $x \geq 2 / y \geq 1$
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(4)

الف) $f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$ $\rightarrow \left\{ \begin{array}{l} \sqrt{x + \frac{1}{x}} = \sqrt{2} \rightarrow y_{\min} = 2\sqrt{2} + 2 \\ \sqrt{x + \frac{1}{x}} = +\infty \rightarrow y_{\max} = +\infty \\ \sqrt{x + \frac{1}{x}} = -1 \text{ غلط} \end{array} \right\} \rightarrow R_f = [2\sqrt{2} + 2, +\infty)$

(5)

ب) $g = -\sin^2 u + 2 \sin u + 3 \rightarrow \left\{ \begin{array}{l} \sin u = 1 \rightarrow y_{\max} = 4 \\ \sin u = -1 \rightarrow y_{\min} = 0 \\ \sin u = 1 \rightarrow \frac{b}{ra} \rightarrow y_{\max} = f \end{array} \right. \rightarrow R_g = [0, 4]$

$$f(n) = -\frac{n}{r} + 1, \quad Df = \{1, 2, 3, 4, 5, \dots, 7\} \quad a_1 = \frac{29}{r} \quad a_7 = \cancel{25} V \quad -7$$

$$S_n = \frac{n}{r} (a_1 + a_7) \xrightarrow{\text{انجا}} f = f, d \left(\frac{29}{r} + V \right) = \underline{V \omega} \quad -V$$

$$f(n) = \sqrt{an^r + bn + c} \xrightarrow{a=0} \begin{cases} rb + c = 1 \\ rb + c = 0 \end{cases} \xrightarrow{C=-r} \begin{matrix} C = -r \\ b = 1 \end{matrix}$$

$$g(n) = \sqrt{n^r + r} \xrightarrow{Rf = \sqrt{[r, +\infty)}} \rightarrow Rf = [r, +\infty)$$

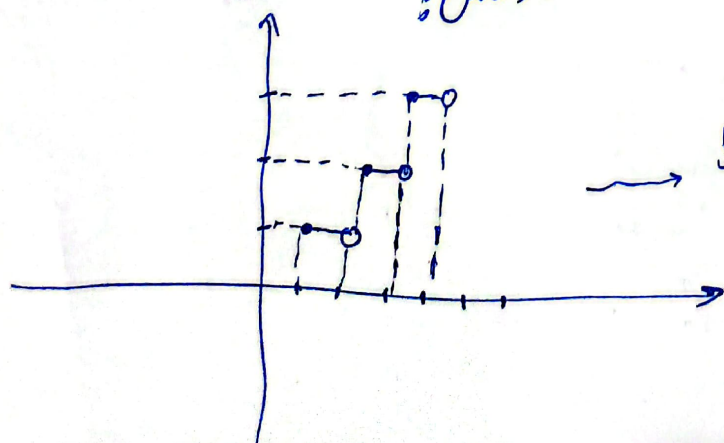
$$f(n) = \frac{n(n-r)(n+r)}{n+r} = n(n-r) = n^r - rn \xrightarrow{\text{از } n \neq -r} \underline{u \neq -r} \quad -1$$

$$\begin{aligned} Rf &= [C, +\infty) - \{1\} \rightarrow u < \frac{r}{r} \\ \rightarrow Df &= \mathbb{R} - \{a, b\} \begin{cases} a = -r \\ b = r \end{cases} \rightarrow \begin{matrix} C = -1 \\ f\left(\frac{a+b}{rc}\right) = f(-1) = r \end{matrix} \end{aligned}$$

$$y = \sqrt[n]{n^r + an^r + bn - 1} \xrightarrow{\text{فرض}} y = \sqrt[n]{(n-r)^r} = \frac{n-r}{n} \quad f(n) = \underline{n-r}$$

$$Df = [-9, 12] \quad Rf = [-1, 6]$$

(10) به تابع عددی درجه دوم $\frac{1}{4} \leq x < 1$ ، $1 \leq x < \frac{3}{4}$ ، $\frac{3}{4} \leq x < 2$ توجه کنید



شکل دایره ۳ باره
می باشد.