

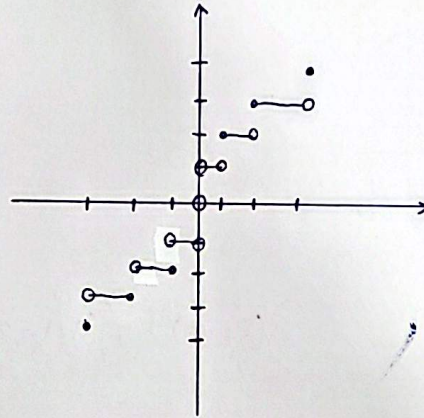
الف) $f(x) = 2 \sin^2(x + \frac{\pi}{2}) - 1$ ①

$\begin{cases} \max \sin^2 = 1 \rightarrow 2 - 1 = 1 \\ \min \sin^2 = 0 \rightarrow 0 - 1 = -1 \end{cases} \Rightarrow R_f = [-1, 1]$

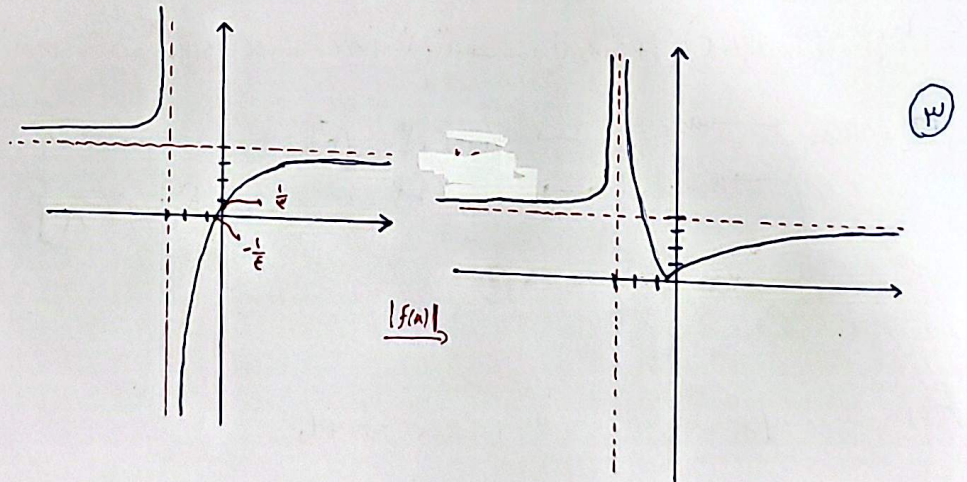
ب) $g(x) = 3 \cos^3 x - 4$ ②

$\begin{cases} \max \cos^3 = 1 \rightarrow 3 - 4 = -1 \\ \min \cos^3 = -1 \rightarrow -3 - 4 = -7 \end{cases} \Rightarrow R_g = [-7, -1]$

$f = \frac{x}{|x|} + [x] ; x \in [-2, 3]$



$f = \left| \frac{x+1}{x+2} \right|$



دوازدهم هر A

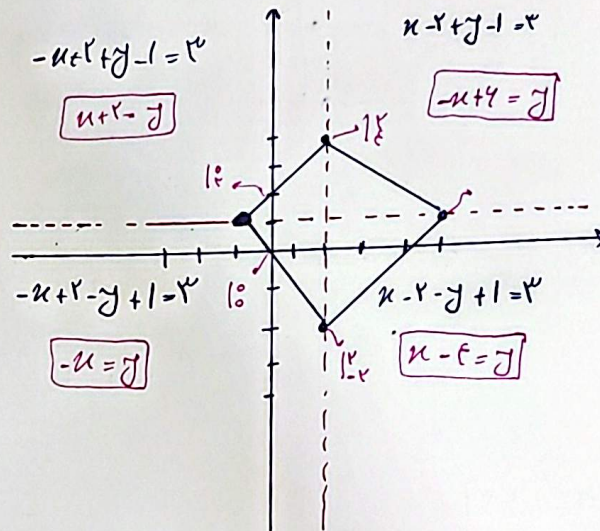
معین نصی

کتاب کار ۶۰

۴

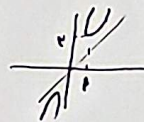
$$|x-2| + |y-1| = 3$$

* شکل باید یک مربع به مرکز (۲، ۱) باشد
که هر اسی آن ۳ واحد از مرکز دور باشد.
آنکه کمی کوچک شد بخاطر واحد بنسب کلی نامناسب بود.



$$f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$$

$$x > 0$$



$$\Rightarrow \{x, +\infty\} \cup \{2\sqrt{x}, +\infty\} \rightarrow R_f = [2\sqrt{2} + 2, +\infty)$$

$$b) y = (3 - \sin x)(1 + \sin x) \rightarrow 3 + 3\sin x - \sin x - \sin^2 x \Rightarrow -\sin^2 x + 2\sin x + 3 =$$

$$\square = \sin x \begin{cases} \text{max} = 1 \rightarrow -1 + 2 + 3 = 4 \\ \text{min} = -1 \rightarrow -1 - 2 + 3 = 0 \\ \frac{-b}{2a} = \frac{-2}{-2} = 1 \rightarrow 4 \end{cases} \Rightarrow R_g = [0, 4]$$

$$f(n) = -\frac{1}{n^2}n + 10 \quad n=1 \rightarrow -\frac{1}{1} + 10$$

$$D_f = \{1, 2, 3, 4, 5, \dots, 9\}$$

$$n=2 \rightarrow -\frac{1}{4} + 10$$

$$n=3 \rightarrow -\frac{1}{9} + 10$$

⋮

$$n=9 \rightarrow -\frac{1}{81} + 10$$

$$(9 \times 10) + \left(\left(-\frac{1}{1} \right) + \left(-\frac{1}{4} \right) + \left(-\frac{1}{9} \right) \right) = 90 - 15 = 75$$

۵

الفصل الأول

مراجعة

تركيبة

$$f(u) = \sqrt{au^2 + bu + c}$$

$$D_f = [r, +\infty)$$

$$a=0$$

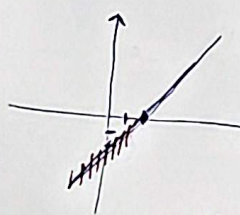
٧) آیا $f(u)$ زوج است؟ خیر

D_f به تمام اعداد است

$$\begin{array}{r} a_1 \quad a_2 \\ + \quad + \\ \hline a_1 \quad a_2 \\ - \quad - \\ \hline a \end{array}$$

$$f(r) = 1$$

$$g(u) = \sqrt{bu^2 + au - rc}$$



$$bu + c = y$$

$$u = r \rightarrow y = 1$$

$$u = r \rightarrow y = -1$$

$$\begin{cases} rb + c = 1 \\ rb + c = -1 \end{cases}$$

$$h=1 \quad c=-2$$

$$R_g = ?$$

$$\sqrt{u^2 + 0 + 4}$$

$$[r, +\infty)$$

$$[r, +\infty) = R_g$$

$$f(u) = \frac{u^2 - \epsilon u}{u + r}$$

$$R_f = [c, +\infty) - \{1\}$$

$$u \neq -r$$

$$\frac{u(u-r)(u+r)}{u+r} \neq 1 \rightarrow u(u-r) \neq 1$$

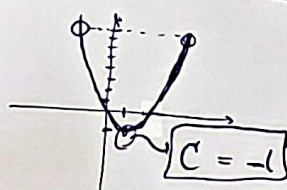
$$u \neq \epsilon$$

$$D_f = \mathbb{R} - \{a, b\}$$

$$a = -r$$

$$b = \epsilon$$

$$f\left(\frac{a+b}{rc}\right) = ?$$



$$\Rightarrow f\left(\frac{-r+\epsilon}{-r}\right) = f(-1) = \frac{-1+\epsilon}{-1+r} = 3$$

٨

دایره A

معین نصفی

کتاب ۴، ۵، ۶

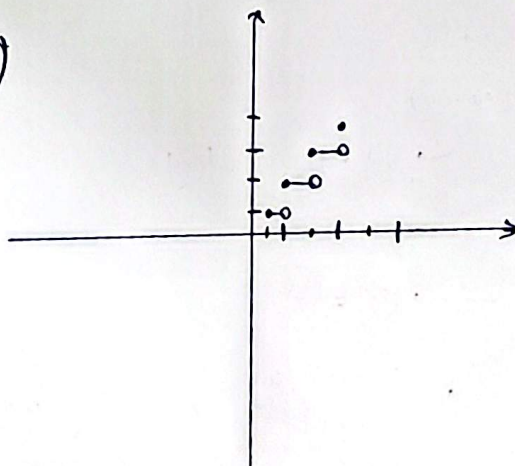
$$y = \sqrt[3]{u^3 + au^2 + bu + c} - 1 \quad \text{---} \quad (u-x)^3 = u^3 - 3u^2x + 3ux^2 - x^3$$

$$[a, b]$$

$$\begin{matrix} \downarrow & \downarrow \\ -4 & 12 \end{matrix}$$

$$y = u-x \begin{matrix} -4 & -1 \\ 12 & 10 \end{matrix} \Rightarrow R_f = [-1, 10]$$

$$y = [u] + [u + \frac{1}{e}] ; u \in [\frac{1}{e}, 1)$$



نقطه ۳ (۱۰)