

پرسا طباطبائی - بنام خداوند جان و خرد - تکلیف شماره ۶، {دوازدهم دختر A}

۱

الف، $f(x) = 2\sin^2\left(x + \frac{\pi}{3}\right) - 1$

$R_f \rightarrow \sin^2 x : [0, 1] \rightarrow 2\sin^2 x : [0, 2] \rightarrow 2\sin^2 x - 1 : [-1, 1]$

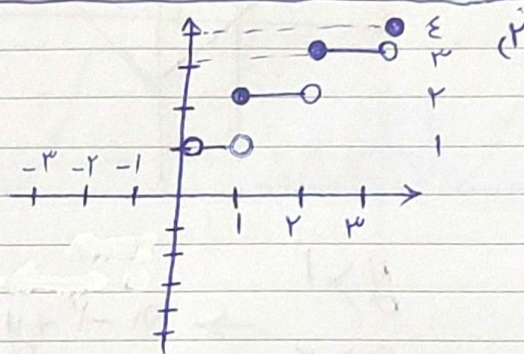
ب، $g(x) = 3\cos^3 x - 4$

$R_g \rightarrow \cos^3 x : [-1, 1] \rightarrow 3\cos^3 x : [-3, 3] \rightarrow 3\cos^3 x - 4 : [-7, -1]$

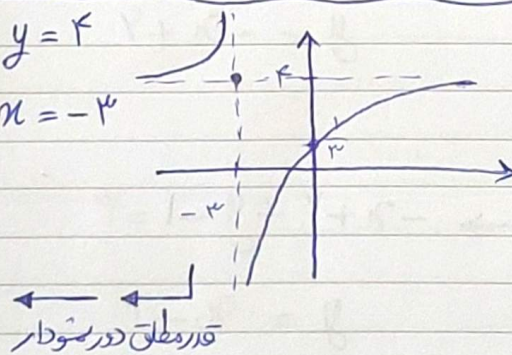
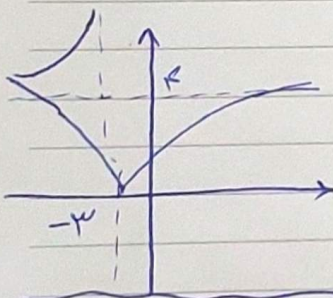
$y = \frac{x}{|x|} + [x]$

ظابطبائی

$\left. \begin{array}{l} [-3, -2) \\ [-2, -1) \\ [-1, 0) \\ [0, 1) \\ [1, 2) \\ [2, 3) \\ [3] \end{array} \right\}$



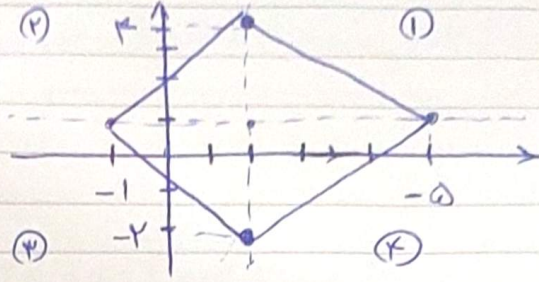
$y = \left| \frac{x+1}{x+3} \right| \rightarrow y = 4$
 $\rightarrow x = -3$



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

$\leftarrow 2 \quad \quad \quad 1 \rightarrow$

مربع است



$$\textcircled{1}: \begin{matrix} x > 2 \\ y > 1 \end{matrix} \Rightarrow x-2+y-1=3 \rightarrow y = -x+6$$

$$\textcircled{2}: \begin{matrix} x < 2 \\ y > 1 \end{matrix} \Rightarrow -x+2+y-1=3 \rightarrow y = x+2$$

$$\textcircled{3}: \begin{matrix} x < 2 \\ y < 1 \end{matrix} \Rightarrow -x+2-y+1=3 \rightarrow y = -x$$

$$\textcircled{4}: \begin{matrix} x > 2 \\ y < 1 \end{matrix} \Rightarrow x-2-y+1=3 \rightarrow y = x-4$$

$$f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}} \rightarrow 0^2 + 20 \quad \Delta \text{ الف}$$

$$\sqrt{x + \frac{1}{x}} = 0 \quad R_f = [2 + 2\sqrt{2}, +\infty)$$

$\leftarrow 2 + 2\sqrt{2} \quad \leftarrow 2 \quad \leftarrow +\infty$

$$[2, +\infty) \leftarrow \frac{1}{x} + x : x$$

$\leftarrow 2 \quad \leftarrow +\infty$

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

$\leftarrow -1 \quad \leftarrow +\infty$

$$y = 3 + 3\sin x - \sin x - \sin^2 x$$

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

$$\begin{aligned} & \rightarrow -\sin^2 x + 2\sin x + 3 \\ & -1 - 2 + 3 = 0, \quad -1 + 2 + 3 = 4 \end{aligned}$$

$$R_f = [0, 4] \quad \left\{ \begin{array}{l} 0 \leftarrow -1 \sin x \\ 4 \leftarrow 1 \end{array} \right.$$

$$f(n) = \frac{1}{n}n + 10 \quad D_f = \{1, 2, \dots, 9\} \quad 6$$

$$R_f \rightarrow \left\{ 10 - \frac{1}{1}, 10 - \frac{2}{2}, \dots, 10 - \frac{9}{9}, 10 - \frac{9}{9} \right\}$$

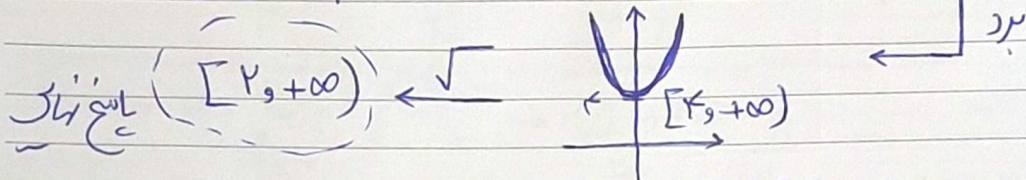
$$(9 \times 10) - \left(\frac{10}{1} + \frac{10}{2} + \frac{10}{3} + \frac{10}{4} + \frac{10}{5} \right) \rightarrow 90 - 10 = 80 = 8 \Delta$$

$$\frac{8\Delta}{8} = \Delta$$

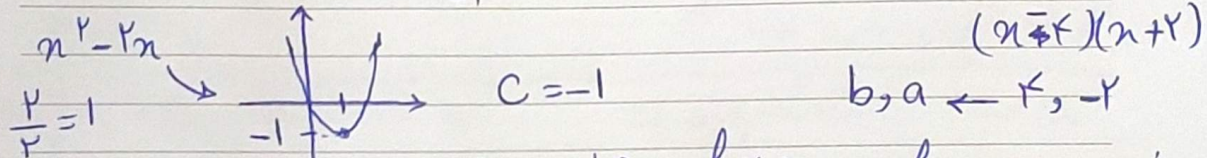
$$f(n) = \sqrt{an^2 + bn + c} \rightarrow \underline{a=0} \quad \underline{bn+c=0} \rightarrow 0$$

$$[2, +\infty) \rightarrow \text{سرسره داده است} \quad \downarrow \quad 1$$

$$\begin{cases} -2b+c=0 \\ 3b+c=1 \end{cases} \rightarrow \underline{b=1} \quad \underline{c=-2} \quad \xrightarrow{\text{بازنویس}} \sqrt{n^2 + 4}$$



$$f(n) = \frac{n(n^2-4)}{n+2} = \frac{n(n-2)(n+2)}{n+2} = n(n-2) \Rightarrow n^2 - 2n = 1$$



$$f\left(\frac{a+b}{2}\right) \Rightarrow f\left(\frac{1}{2}\right) \rightarrow f(-1) \rightarrow n^2 - 2n = 3$$

A

مولد : [9, 12]

$$y = [n] + \left[n + \frac{1}{r} \right] \quad \left. \begin{array}{l} \left[\frac{1}{r}, 1 \right) \\ \left[1, \frac{r}{r} \right) \\ \left[\frac{r}{r}, 2 \right) \end{array} \right\} \text{ظابطه بندی}$$

