

(الف)

$$\frac{2 \sin^2(x + \frac{\pi}{6}) - 1}{[0, 2]} \rightarrow R_f = [-1, 1]$$

(۲)

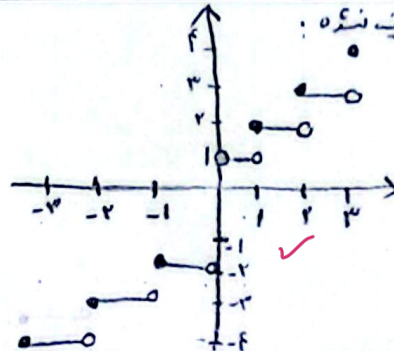
(ب)

$$\frac{3 \cos^2 x - 4}{[-\pi, \pi]} \rightarrow R_f = [-1, -\frac{1}{3}]$$

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این تابع در $x=0$ به تعریف نرسیده:

$$\begin{aligned} -3 < x < -2 &\rightarrow [x] = -3 \rightarrow -4 \\ -2 < x < -1 &\rightarrow [x] = -2 \rightarrow -3 \\ -1 < x < 0 &\rightarrow [x] = -1 \rightarrow -2 \\ 0 < x < 1 &\rightarrow [x] = 0 \rightarrow -1 \\ 1 < x < 2 &\rightarrow [x] = 1 \rightarrow 0 \\ 2 < x < 3 &\rightarrow [x] = 2 \rightarrow 1 \\ x = 3 &\rightarrow 2 \end{aligned}$$

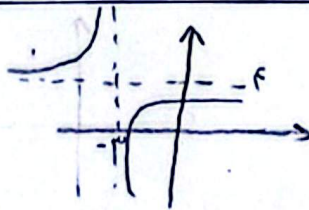


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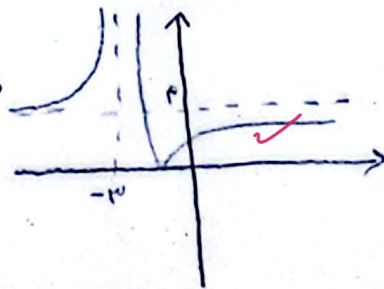
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$$y = \frac{x+1}{x+3}$$

میانبر = ۴
انتظ = ۳
میانبر قائم = ۳



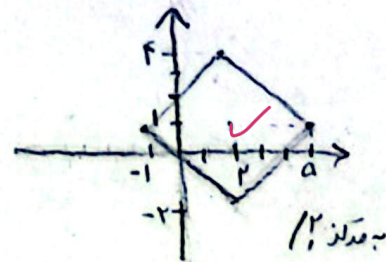
قد معلوق را
اغال تقایم



(۳)

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$y > 1$ $x > 2$	$y < 1$ $x > 2$	$y > 1$ $x < 2$	$y < 1$ $x < 2$
$x - 2 + y - 1 = 3$	$x - 2 + 1 - y = 3$	$2 - x + y - 1 = 3$	$2 - x + 1 - y = 3$
$\rightarrow y = 4 - x$	$\rightarrow y = x - 4$	$\rightarrow y = x + 2$	$\rightarrow y = -2$



(۲)

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عبارت زیر را در اقل
استیج غیر قابل
قبول

$$x + \frac{1}{x} \leq -2 \text{ و } x + \frac{1}{x} \geq 2 \rightarrow (\sqrt{x + \frac{1}{x}}) \geq \sqrt{2} \pm \sqrt{x + \frac{1}{x}} + 1 \geq \sqrt{2} + 1 \rightarrow (\sqrt{x + \frac{1}{x}} + 1) \geq \sqrt{2} + 1 \rightarrow (\sqrt{x + \frac{1}{x}} + 1)^2 \geq (\sqrt{2} + 1)^2 \rightarrow x + \frac{1}{x} + 2 \geq 2 + 2\sqrt{2} \rightarrow x + \frac{1}{x} \geq 2\sqrt{2}$$

$$\rightarrow R_f = [2, 2\sqrt{2}] \cup [\infty, \infty)$$

(الف)

(۲)

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(ب)

$$y = -\sin^2 x + \sin x + 2 \rightarrow \sin x = 1 \rightarrow 4$$

$$\rightarrow \sin x = -1 \rightarrow 0$$

$$\rightarrow \sin x = \frac{1}{2} \rightarrow 4$$

$$\Rightarrow R_f = [0, 4]$$

$$D_f = \{1, r, w, \dots, q\}$$

$$f(1) = \frac{19}{2}$$

$$f(r) = \frac{r}{r_0}$$

$$f(r) = \frac{2}{3}$$

$$f(x) = \frac{v_g}{r}$$

$$\begin{pmatrix} 1 \\ \vdots \\ r \end{pmatrix} \quad y_1$$

$$f(9) = \frac{1}{3}$$

$$C_p = \left(\frac{\gamma}{\gamma-1} + \frac{\gamma-1}{\gamma} \right) \times \frac{\gamma}{\gamma-1} = \gamma$$

$$ax^2 + bx + c = 0. \quad \frac{r}{-1+} \rightarrow a \checkmark, \quad f(r) = 0 \rightarrow rb + c = 0 \rightarrow c = -rb$$

$$f(r) = 1 \rightarrow r^b + c = 1 \xrightarrow{c = -r^b} b = 1 \checkmark \rightarrow c = -r \checkmark$$

$$\Rightarrow g(x) = \sqrt{x^2 + f} \rightarrow Rg = [r, \infty)$$

یعنی اگر x جای 2 ، a ، b بذاریم، عرض 1 بدست می آید

$$\rightarrow 2(x-r) = 1 \xrightarrow{\Delta=4} x \rightarrow \begin{matrix} -r=a \\ f=b \end{matrix}$$

$C = -1$ $\Rightarrow R = [-1, +\infty) - \{1\} \Rightarrow x_5 = 1 \rightarrow y_5 = -1$; $\text{and min } y_5 = -1$; $\text{and max } y_5 = 1$;

$$f\left(\frac{a+b}{2}\right) = f(-1) = 1$$

$$\sqrt[n]{(x-r)^n} \rightarrow \sqrt{x^2 - 14x + 49} \rightarrow \begin{matrix} b=14 \\ a=-4 \end{matrix} \rightarrow D_f = [a, b] \rightarrow D_f = [-4, 14]$$

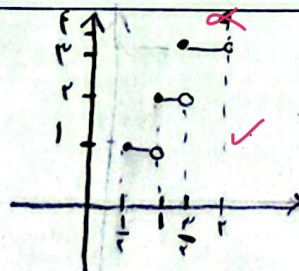
$$\left. \begin{array}{l} f(-1) = -1 \\ f(1) = 1 \end{array} \right\} \rightarrow Rf = [-1, 1]$$

$$\frac{1}{q} \leq x < 1 \quad \frac{[x]}{[x + \frac{1}{q}]} = 1$$

$$1 \leq x < \frac{p}{r} \quad \frac{[x]=1}{[x+\frac{1}{r}]=1} \quad \vdash$$

$$\frac{\mu}{T} \langle \chi \rangle = \frac{[2]}{[2+1]^{2.5}} \quad \mu$$

$$x = y \rightarrow y$$



✓
12/12/20

$$[\frac{1}{r}, 2)$$