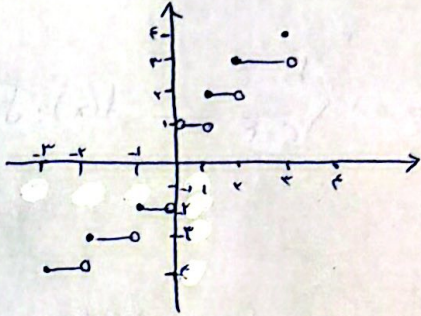
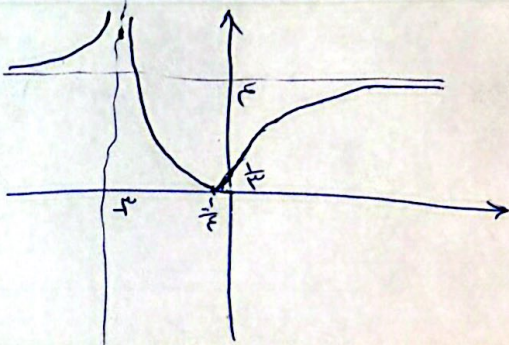
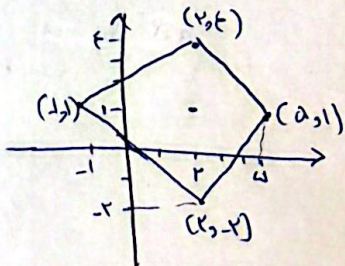


$g(x) = \underbrace{\cos^3 x}_{[-1, 1]}$ $\Rightarrow R_f = [-1, 1]$	$f(x) = \underbrace{2 \sin^2(x + \frac{\pi}{4})}_{[0, 2]} - 1$ $\Rightarrow R_f = [-1, 1]$	(الف)	۱
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$y = \frac{x}{ x } + [x]$ $\begin{cases} x > 0 \rightarrow 1 + [x] \\ x < 0 \rightarrow -1 + [x] \end{cases}$ $\begin{aligned} -3 < x < -2 &\rightarrow y = -4 & 0 < x < 1 &\rightarrow y = 1 \\ -2 < x < -1 &\rightarrow y = -3 & 1 < x < 2 &\rightarrow y = 2 \\ -1 < x < 0 &\rightarrow y = -2 & 2 < x < 3 &\rightarrow y = 3 \\ & & x = 3 &\rightarrow y = 4 \end{aligned}$			۲
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$y = \left \frac{x+1}{x+3} \right $ $\begin{cases} x \leq -3 \rightarrow y = 4 \\ -3 < x < -1 \rightarrow y = 2 \\ -1 < x < 0 \rightarrow y = 1 \\ 0 < x < -3 \rightarrow y = 1/2 \end{cases}$			۳
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$\begin{cases} 2-x+y=3 \rightarrow x+y=1 & x < 2 & y < 1 \\ & y = -x+1 & (1, 0) \\ 2-x+y=3 \rightarrow y-x=1 & x < 2 & y < 1 \\ & y = x+1 & (0, 1) \\ x-2+y=1 \rightarrow x+y=3 & x > 2 & y > 1 \\ & y = -x+3 & (2, 1) \\ x-2+y=1 \rightarrow y=x-1 & x > 2 & y > 1 \\ & y = x-1 & (3, 2) \end{cases}$			۴
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$y = (3 - \sin x)(1 + \sin x) = -\sin^2 x + 2\sin x + 3$ $\sin x = \frac{-b}{a} = \frac{-2}{-1} = 2 \rightarrow y = 3$ $\sin x = 1 \rightarrow y = 4$ $\sin x = -1 \rightarrow y = 0$ $R_f = [0, 4]$	$f(x) = x + \frac{1}{x} + 2\sqrt{x - \frac{1}{x}}$ $x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x} + 1} - 1 \sqrt{\frac{x+1}{x}} = \frac{2}{x} + 2\sqrt{x+1} - 1$ $-(x+1)^2 - 1 \rightarrow R_f = [2\sqrt{2}+1, +\infty)$	(اند)	۵
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$$D = \{1, 2, 3, \dots, 9\}$$

$$x=1 \rightarrow y = \frac{19}{1}$$

$$x=17 \rightarrow y = \frac{17}{17}$$

$$x=2 \rightarrow y = \frac{18}{2}$$

$$x=1 \rightarrow y = \frac{17}{1}$$

$$x=3 \rightarrow y = 4$$

$$x=9 \rightarrow y = \frac{17}{9}$$

$$x=4 \rightarrow y = \frac{16}{4}$$

$$x=17 \rightarrow y = \frac{17}{17}$$

$$x=17 \rightarrow y = \frac{17}{17}$$

$$\frac{19+17+1+17}{4} = \sqrt{17}$$

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$$a=0 \rightarrow \begin{cases} b+c=0 \\ b+c=1 \end{cases}$$

$$\begin{cases} b=1 \\ c=-1 \end{cases}$$

$$g(x) = \sqrt{x+1} \rightarrow R_g = [1, +\infty)$$

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$$D = R \setminus \{-1\}$$

$$R = [-1, +\infty) \setminus \{1\} \quad c = -1$$

$$\frac{x^3 - 1}{x+1} = 1$$

$$x^3 - 1 = 1(x+1) \rightarrow x^3 - 1 - x - 1 = 0 \rightarrow x = -1$$

$$f\left(\frac{a+b}{2c}\right) = f(1) = 0$$

8

$$\sqrt{(x-1)^2} = x-1$$

$$x^2 - 4x + 4 = 1$$

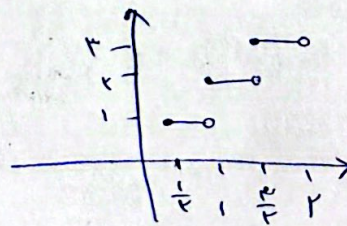
$$D = [-9, 12] \rightarrow R = [-1, 1]$$

9

$$\frac{1}{x} < 1 \rightarrow y = 1$$

$$\frac{1}{x} < \frac{1}{x} \rightarrow y = 2$$

$$\frac{1}{x} < 1 \rightarrow y = 3$$



(2)

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