

باران شریفی تالیف شماره ششم سال ۱۳۹۰

الف) $2\sin^2(x + \frac{\pi}{3}) - 1$ $\begin{cases} \max = 1 \rightarrow 2x - 1 = 1 \\ \min = 0 \rightarrow 2x - 1 = -1 \end{cases}$

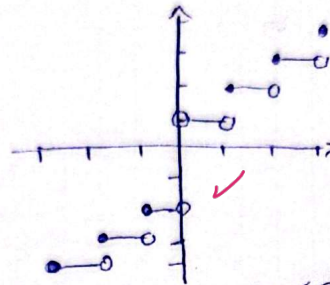
سوال ۱: $R_f = [-1, 1]$ (۲)

ب) $3\cos^3 x - 5$ $\begin{cases} \max = 1 \rightarrow 3x - 5 = 1 \\ \min = -1 \rightarrow 3x - 5 = -1 \end{cases} \rightarrow R = [-1, 1]$

۲. $y = \frac{x}{|x|} = [x] \quad x \in [-3, 3]$

$x > 0 \rightarrow 1 + [x]$

$x < 0 \rightarrow -1 + [x]$



سوال ۲: $-3 \leq x < -2$

$2 \rightarrow -1 - 3 = -4$ (۲)

$-2 \leq x < -1$

$2 \rightarrow -1 - 2 = -3$

$-1 \leq x < 0$

$2 \rightarrow -1 - 1 = -2$

$0 \leq x < 1$

$2 \rightarrow 1 + 0$

$2 \leq x < 3 \rightarrow 1 + 2 = 3$

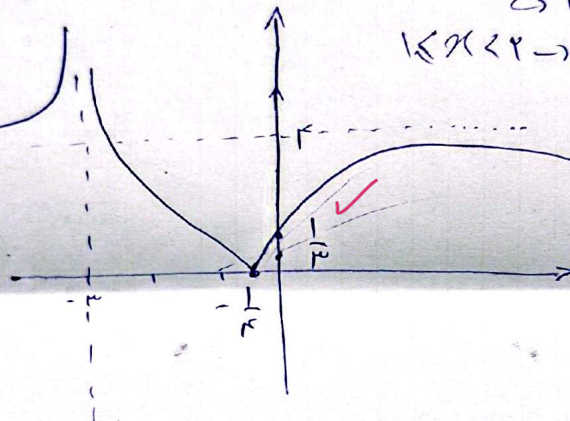
$1 \leq x < 2 \rightarrow 1 + 1 = 2$

$x = 3$

$1 + 3 = 4$

سوال ۳: (۲)

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



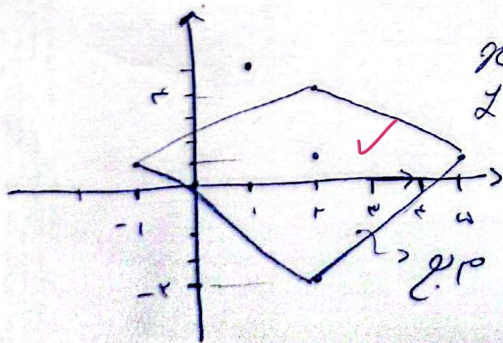
$|x-2| + |y-1| = 3$

$x < 0, y < 0 \rightarrow 2 - x + 1 - y = 3$
 $-x = +x$

سوال ۴: $x > 0, y > 0 \rightarrow x - 2 + y - 1 = 3$
 $y = 4 - x$ (۲)

$x > 0, y < 0 \rightarrow x - 2 + 1 - y = 3$
 $y = x - 4$

$x < 0, y > 0 \rightarrow 2 - x + y - 1 = 3$
 $y = x + 2$



الف) $y = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$ $x + \frac{1}{x} > 0 \rightarrow \frac{x^2 + 1}{x} > 0 \rightarrow x > 0$

$2 \rightarrow \min = 2 \quad R = [2 + 2\sqrt{2}, +\infty)$

سوال ۵: (۲)

ب) $y = (3 - \sin x)(1 + \sin x)$

$-\sin^2 x + 2\sin x + 3$ $\begin{cases} \max \rightarrow 1 \rightarrow -1 + 2 + 3 = 4 \\ \min \rightarrow -1 \rightarrow -1 - 2 + 3 = 0 \end{cases}$

$R = [0, 4]$

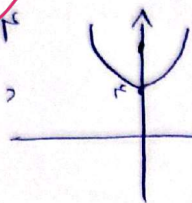
$$f(x) = -\frac{1}{x}x + 10$$

$$2, \left\{ \frac{19}{3}, \frac{21}{3}, \dots, \frac{11}{3} \right\} \quad \frac{(-19+11)x+3}{2x+3} = 1 \quad \text{سوال 37 (2)}$$

$$f(x) = \sqrt{ax^2 + bx + c} \quad \sum (r, +\infty) \quad f(r) = 1$$

$$g(x) = \sqrt{bx^2 + ax - rc} \quad \begin{cases} ra + rb + c = 0 \\ 9a + 3b + c = 1 \\ a + b = 1 \\ b = 1 \quad c = 1 \end{cases} \quad \frac{a=0}{c=1} \quad \text{سوال 17 (2)}$$

$$\sqrt{x^2 + 1}$$



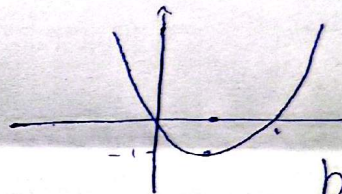
$$a + b = 1$$

$$b = 1 \quad c = 1$$

$$R_f = [1, +\infty)$$

$$f(x) = \frac{x^2 - 1}{x + 1} \quad D = \mathbb{R} - \{a, b\} \quad R = [c, +\infty) - \{1\}$$

$$f\left(\frac{a+b}{rc}\right) \quad 2, \quad \frac{x(x-1)(x+1)}{(x+1)} = x^2 - 1$$



$$b = -1 \quad b = 1$$

$$2, \quad f\left(\frac{-1+1}{-1}\right) = f(0) = 1 \quad a = -1 \rightarrow \frac{b}{ra} = \frac{1}{-1} = -1$$

$$b = ? \rightarrow \frac{b^2 - 1}{b+1} = 1 \rightarrow \frac{b(b-1)}{b+1} = 1$$

$$y = \sqrt{x^2 + ax + b} - 1 \quad \sum (a, b) = D \quad 2, \quad \sqrt{x^2 - 4x + 12} - 1$$

$$a = [-4, 12]$$

$$R_f = [-1, 10]$$

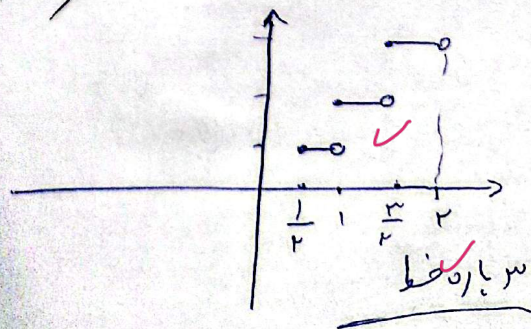
$$\text{سوال 9 (2)}$$

$$y = \left\lfloor x \right\rfloor + \left\lfloor x + \frac{1}{2} \right\rfloor \quad \sum \left\lfloor \frac{1}{2}, 1 \right\rfloor$$

$$\frac{1}{2} \leq x < 1 \rightarrow y = 0 + 1 = 1$$

$$1 \leq x < \frac{3}{2} \rightarrow y = 1 + 1 = 2$$

$$\frac{3}{2} \leq x < 2 \rightarrow y = 1 + 2 = 3$$



$$\text{سوال 10 (2)}$$