

۱۸، ۷۵

برای تلفظ و نشان کلاس درازدهم سیر B کلاس سیر ۶۰

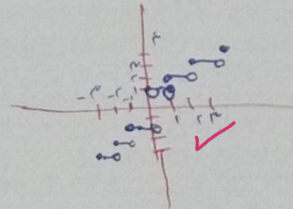
الف $f(x) = 2 \sin^2\left(x + \frac{\pi}{4}\right) - 1 \Rightarrow 0 \leq \sin^2 x \leq 1 \rightarrow 0 \leq 2 \sin^2 x \leq 2 \rightarrow -1 \leq 2 \sin^2 x - 1 \leq 1$ (۲) (۱)

$\rightarrow R_f: [-1, 1]$

ب $g(x) = 2 \cos^2 x - 2 \rightarrow -1 \leq \cos^2 x \leq 1 \rightarrow -2 \leq 2 \cos^2 x \leq 2 \rightarrow -4 \leq 2 \cos^2 x - 2 \leq -1$
 $\rightarrow R_g: [-4, -1]$

$y = \frac{x}{|x|} + [x] \xrightarrow{x > 0} 1 + [x]$
 $\xrightarrow{x < 0} -1 + [x]$

(۲) (۲)



$x = -5 \rightarrow y = -5$

$x = -1 \rightarrow y = -2$

$x = -5.5 \rightarrow y = -5$

$x = -0.5 \rightarrow y = -2$

$x = -2 \rightarrow y = -3$

$x \neq 0$

$x = -1.5 \rightarrow y = -3$

$x = 0.5 \rightarrow y = 1$

$x = 1 \rightarrow y = 2$

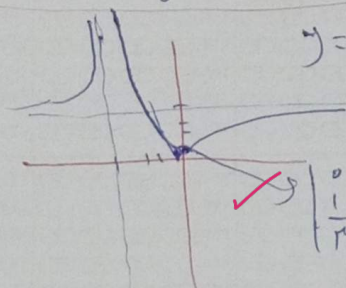
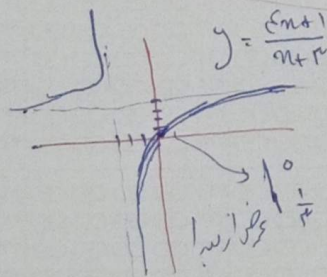
$x = 2 \rightarrow y = 4$

$x = 1.5 \rightarrow y = 2$

$x = 2 \rightarrow y = 3$

$x = 2.5 \rightarrow y = 3$

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



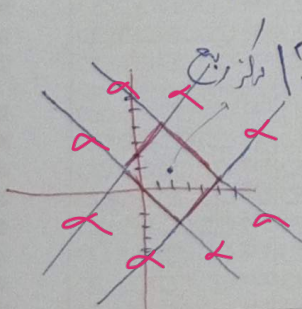
$y = \left| \frac{5x+1}{x+2} \right|$

(۲) (۳)

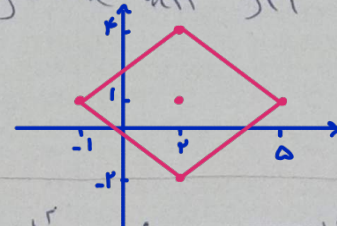
$|x-2| + |y-1| = 3$

$\begin{cases} x-2+y-1=3 \Rightarrow x+y=6 \rightarrow y = -x+6 \\ x-2+(-y)+1=3 \rightarrow y = x-4 \\ (-x)+2+y-1=3 \rightarrow y = x+2 \\ (-x)+2+(-y)+1=3 \rightarrow y = -x \end{cases}$

$\begin{cases} x \geq 2, y \geq 1 \\ x \geq 2, y < 1 \\ x < 2, y \geq 1 \\ x < 2, y < 1 \end{cases}$



خطوط را از هم جدا
نمیشه ط مثل
یک مربع است!



(۴) (۱، ۵)

ج $f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}} = a + 2\sqrt{a} = (1 + \sqrt{a})^2 - 1 = \left(1 + \sqrt{x + \frac{1}{x}}\right)^2 - 1$ (۲) (۱)

$\min\left(x + \frac{1}{x}\right) = 2 \rightarrow \min\left(\sqrt{x + \frac{1}{x}}\right) = \sqrt{2} \rightarrow (1 + \sqrt{2})^2 - 1 = 2 + 1 + 2\sqrt{2} - 1 = 2 + 2\sqrt{2}$

$\rightarrow R_f: [2 + 2\sqrt{2}, +\infty)$

د $y = (2 - \sin x)(1 + \sin x) = -\sin^2 x + \sin x + 2$
 $\begin{cases} \sin x = 1 \rightarrow y = 2 \\ \sin x = -1 \rightarrow y = 0 \end{cases} \rightarrow R_f: [0, 2]$
 $\frac{-b}{2a} = \frac{-1}{-2} = \frac{1}{2} \rightarrow \sin x = \frac{1}{2} \rightarrow x = \frac{\pi}{6}, \frac{5\pi}{6}$

برای تلفظ و بیان کلاس دارد و هر کس بکشد

$$f(x) = \frac{x}{x} + 1 \quad D_f: \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \Rightarrow \sum_{i=1}^{n+2} f(x_i) = \frac{-(1+2+3+\dots+9)}{x} + 9 \times 1$$

$$= \frac{-45}{x} + 9 = -15 + 9 = -6$$

$$f(x) = \sqrt{ax^2 + bx + c} \quad D_f: [r, +\infty) \Rightarrow a=0 \rightarrow f(x) = \sqrt{bx + c}$$

$$f(r) = 0 \rightarrow rb + c = 0 \rightarrow c = -rb \quad f(r) = 1 \rightarrow rb + \frac{rb}{r} = 1 \rightarrow b = 1, c = -r$$

$$\Rightarrow f(x) = \sqrt{x - r}$$

$$g(x) = \sqrt{bx^2 + ax - rc} \quad \left. \begin{array}{l} a=0 \\ b=1 \\ c=-r \end{array} \right\} \rightarrow g(x) = \sqrt{x^2 + x} \rightarrow \min g(x) = \sqrt{0+0} = \sqrt{0} = 0$$

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

$$f(x) = \frac{x^r - rx}{x+r} = \frac{x(x^r - r)}{x+r} = \frac{x(x-r)(x+r)}{x+r} \xrightarrow{x \neq -r} x^r - rx$$

$$D_f: \mathbb{R} - \{a, b\} \quad \left. \begin{array}{l} a = -r \\ b = -r \end{array} \right\}$$

$$R_f: [c, +\infty) - \{a\} \quad \min f(x): rx - r^2 \rightarrow x = 1 \rightarrow \min f(x) = 1 - r = -1 \quad \checkmark \quad c$$

$$R_f: [-1, +\infty) - \{a\} \rightarrow x^r - rx = 1 \rightarrow x^r - (x - 1) \rightarrow (x+1)(x-r)$$

$$\rightarrow \frac{a+b}{rc} = \frac{-r+r}{r(-1)} = \frac{0}{-r} = 0 \rightarrow f(-1) = \frac{-1+r}{(-1)+r} = \frac{r}{r} = 1$$

$$y = \sqrt{x^r + ax^r + bx - 1} \rightarrow \text{تجزیه} \rightarrow \text{تجزیه}$$

$$\rightarrow y = \sqrt{(x-r)^r} \rightarrow (x-r)^r = x^r - 4x^r + 15x - 1 \rightarrow a = -4, b = 15$$

$$D_f: [-4, 15]$$

$$f(x) = x - 5$$

$$f(-4) = -1 \quad f(15) = 10$$

$$y = \left[x \right] + \left[x + \frac{1}{r} \right] \quad D_f: \left[\frac{1}{r}, r \right]$$

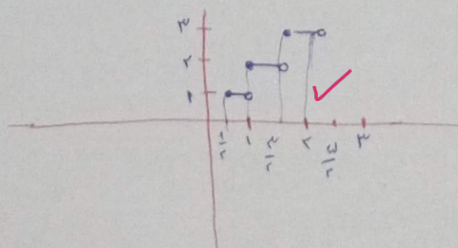
$$x = \frac{1}{r} \rightarrow y = 1$$

$$x = 1 \rightarrow y = r$$

$$x = 1, r \rightarrow y = r$$

$$x = 1, a \rightarrow y = r$$

$$x = r \rightarrow y = r$$



نقطه حفظ