

کتاب آخر منتهی بلف ۷ حوازم رفتند A

$$D_f = [-2, 4] \quad D_f\left(\frac{3a+2}{5}\right) = ? \quad (1) \quad (2)$$

$$-2 \leq \frac{3a+2}{5} \leq 4 \quad -10 \leq 3a+2 \leq 20 \quad -12 \leq 3a \leq 18$$

$$-4 \leq a \leq 6 \quad D_f\left(\frac{3a+2}{5}\right) = [-4, 4] \quad (2) \quad (3)$$

$$D_f(3a-2) = [-2, 3] \quad D_f = ? \quad (2) \quad (4)$$

$$-2 \leq 3a-2 \leq 3 \quad -4 \leq 3a \leq 5 \quad -1 \leq a-2 \leq 1$$

$$D_f = [-1, 1] \quad (2) \quad (5)$$

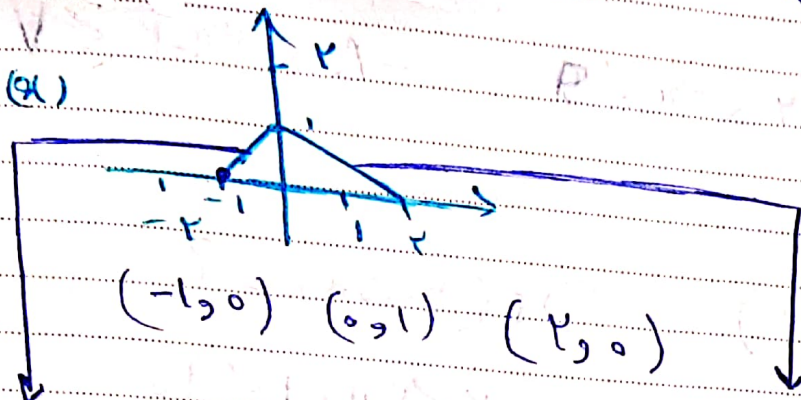
$$D_f\left(\frac{3a+1}{4}\right) = [-1, 3] \quad D_f(2-a) = ? \quad (2) \quad (6)$$

$$-1 \leq \frac{3a+1}{4} \leq 3 \quad -4 \leq 3a+1 \leq 12 \quad -2 \leq 3a \leq 11$$

$$-1 \leq \frac{3a+1}{4} \leq 3 \quad D_f = [-1, 3] \rightarrow -1 \leq 2-a \leq 3$$

$$-1 \leq 2-a \leq 3 \quad \frac{1}{3} \geq a \geq -\frac{1}{3} \quad D_f(2-a) = \left[-\frac{1}{3}, \frac{3}{3}\right] \quad (2) \quad (7)$$

$f(x)$



$(-1, 0) \quad (0, 1) \quad (2, 0)$

$$a = \frac{0-1}{2-0} = -\frac{1}{2}$$

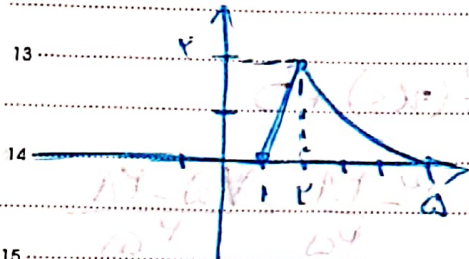
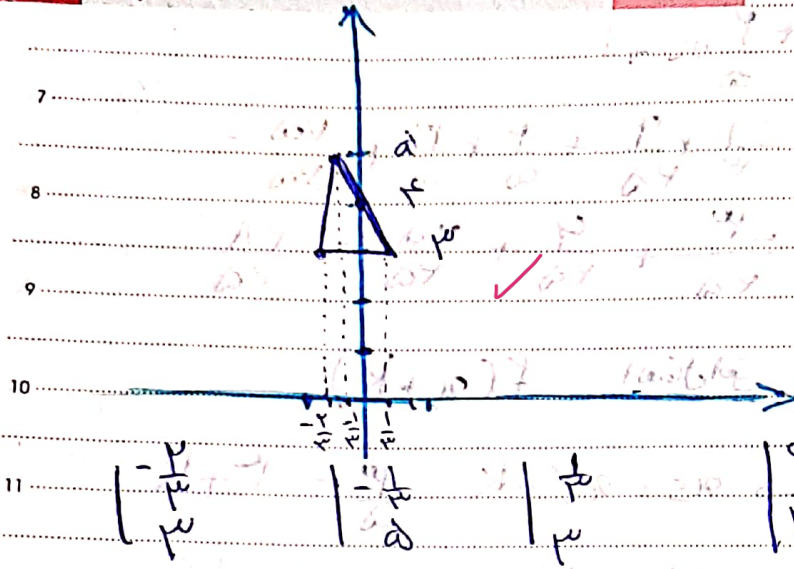
$$y = -\frac{1}{2}x + 1$$

$$a_2 = \frac{1-0}{0-(-1)} = 1 \rightarrow y_2 = x + 1$$

$$f(x) = \begin{cases} x+1 & -1 \leq x < 0 \\ -\frac{1}{2}x+1 & 0 \leq x \leq 2 \end{cases} \rightarrow f(x_{k+1}) = \begin{cases} x_{k+1}+1 & -1 \leq x_{k+1} < 0 \\ -\frac{1}{2}(x_{k+1})+1 & 0 \leq x_{k+1} \leq 2 \end{cases}$$

$$f(x_{k+1}) = \begin{cases} x_{k+1}+1 & -\frac{1}{2} \leq x_{k+1} < -\frac{1}{2} \\ -\frac{1}{2}x_{k+1} + \frac{1}{2} & -\frac{1}{2} \leq x_{k+1} \leq \frac{1}{2} \end{cases}$$

$$2f(x_{k+1}) + 1 = \begin{cases} 4x_{k+1} + 1 & -\frac{1}{2} \leq x_{k+1} < -\frac{1}{2} \\ -x_{k+1} + 1 & -\frac{1}{2} \leq x_{k+1} \leq \frac{1}{2} \end{cases}$$



$$f(1) = 0$$

$$f(2) = 1$$

$$f(5) = 0$$

$$f(10) = 0$$

(a)

$$f(2 - 2a) = f(1)$$

$$2 - 2a = 1$$

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

$$y = \frac{1}{2} f(1) = 0$$

$$f(2 - 2a) = f(2)$$

$$2 - 2a = 2$$

$$a = 0$$

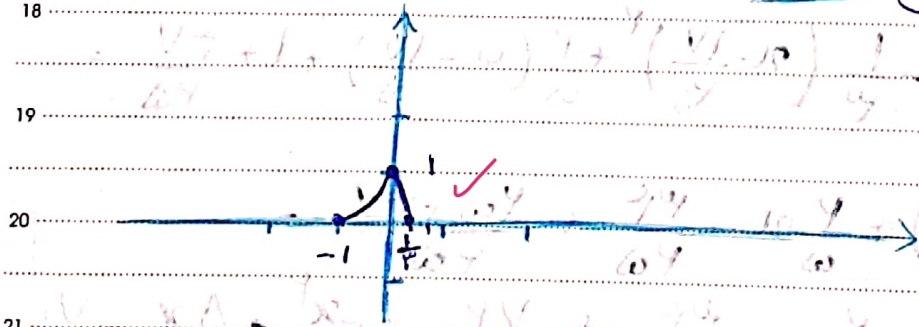
$$y = \frac{1}{2} f(2) = \frac{1}{2} = 1$$

$$f(2 - 2a) = f(5)$$

$$2 - 2a = 5$$

$$a = -\frac{3}{2}$$

$$y = \frac{1}{2} f(5) = 0$$



27.04.2005

۱۳۸۴/۰۲/۰۷

$$f(x) = -\frac{1}{x^2}x^2 + \frac{1}{\omega}x + 1$$

$$x_s = \frac{-1}{\omega} = \frac{\mu}{\omega} \quad y_s = -\frac{1}{x^2} \times \frac{9}{2\omega} + \frac{1}{\omega} \times \frac{\mu}{\omega} + \frac{2\omega}{2\omega} = \textcircled{4}$$

$$S \begin{vmatrix} \frac{2}{\omega} \\ \frac{21}{2\omega} \end{vmatrix} S' \begin{vmatrix} \mu \\ \omega \end{vmatrix} \quad \frac{-\mu}{2\omega} + \frac{9}{2\omega} + \frac{2\omega}{2\omega} = \frac{21}{2\omega}$$

$f(x)$ انقال می، $f(x+k)$

$$f(x_s) = f(x_s' + k) \rightarrow x_s = x_s' + k \quad \frac{\mu}{\omega} = k + k$$

$$k = \frac{\mu}{\omega} - k = \frac{\mu - \mu}{\omega} = -\frac{14}{\omega} \quad f(x) \rightarrow f(x - \frac{14}{\omega})$$

$$f(x) \text{ انقال می} \rightarrow f(x) + b \quad y_s' = f(x_s) + b$$

$$\mu = f\left(\frac{\mu}{\omega}\right) + b \quad \mu = \frac{21}{2\omega} + b \quad b = \frac{\mu - \frac{21}{2\omega}}{2\omega} = \frac{2\omega - 21}{2\omega}$$

$$b = \frac{2\omega - 21}{2\omega} \quad f(x) \rightarrow f(x) + \frac{2\omega - 21}{2\omega}$$

$$f(x) \rightarrow f\left(x - \frac{14}{\omega}\right) + \frac{2\omega - 21}{2\omega}$$

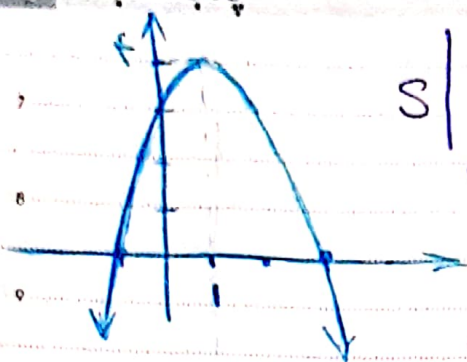
$$f\left(x - \frac{14}{\omega}\right) + \frac{2\omega - 21}{2\omega} = -\frac{1}{x^2} \left(x - \frac{14}{\omega}\right)^2 + \frac{1}{\omega} \left(x - \frac{14}{\omega}\right) + 1 + \frac{2\omega - 21}{2\omega} =$$

$$-\frac{1}{x^2} \left(x^2 - \frac{28}{\omega}x + \frac{196}{\omega^2}\right) + \frac{1}{\omega}x - \frac{14}{\omega^2} + \frac{2\omega - 21}{2\omega} =$$

$$-\frac{x^2}{x^2} + \frac{28}{1\omega}x - \frac{196}{2\omega^2} + \frac{1}{\omega}x - \frac{14}{\omega^2} + \frac{2\omega}{2\omega} - \frac{21}{2\omega} = -\frac{x^2}{x^2} + \frac{1}{\omega}x - \frac{1}{\omega}$$

$$-\frac{x^2}{x^2} + \frac{1}{\omega}x - \frac{1}{\omega} = 0 \rightarrow -\frac{1}{x^2} (x^2 - 1x + 1) = 0$$

$$-\frac{1}{x^2} (x-1)(x-1) = 0 \rightarrow x = 1, 1 \checkmark$$



$$S \mid \begin{cases} x_S = 1 \\ y_S = x \end{cases}$$

$$f(1) = x$$

$$f(x_3 + 1) = f(1) \quad x_3 + 1 = 1$$

$$x_3' = 1 \quad x_3' = -\frac{1}{x} \quad x = -\frac{1}{x}$$

$$y_S' = 1 - x f(1) = 1 - x \cdot x = 1 - 1 = -x \quad \beta = -x$$

$$\alpha \beta = (-x) \left(-\frac{1}{x}\right) = \frac{x}{x} = 1$$

$$Df = (a, t)$$

$$f: a < x-1 < x$$

$$y = f(x-1) + g(x+1)$$

$$Dg = [-1, b)$$

$$-1 < x+1 < b$$

$$Dy = (-2, d)$$

$$-2 < x < b-1$$

$$a+1 < x \leq d$$

$$Dy = Df(x-1) \cap Dg(x+1)$$

$$(-2, d) \cap (a+1, d] \cap [-2, b-1)$$

$$a+1 = -2 \quad a = -3$$

$$b-1 = d \quad b = d+1$$

$$a-b = -3 - (d+1) = -4 - d$$

این $a+1 = -2$ است
جزء این Dy باشد

این $b-1 = d$ است
جزء Dy باشد

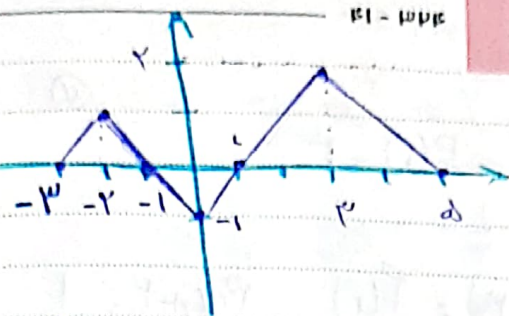
30.04.2005

۱۳۸۲/۰۲/۱۰

۳۱ - ۱۳۸۲

$f\left(\frac{x}{y}+1\right)$

(۲) (۹)



$f\left(-\frac{3}{y}+1\right) = 0$	$f\left(-\frac{1}{y}\right) > 0$	$y f\left(-\frac{1}{y}\right) - 3 = -3$
$f\left(-\frac{1}{y}+1\right) = 1$	$f(0) = 1$	$y f(0) - 3 = -1$
$f\left(-\frac{1}{y}+1\right) = 0$	$f\left(\frac{1}{y}\right) = 0$	$y f\left(\frac{1}{y}\right) - 3 = -3$
$f(0+1) = -1$	$f(1) = -1$	$y f(1) - 3 = -3$
$f\left(\frac{1}{y}+1\right) = 0$	$f\left(\frac{3}{y}\right) = 0$	$y f\left(\frac{3}{y}\right) - 3 = -3$
$f\left(\frac{3}{y}+1\right) = 1$	$f\left(\frac{3}{y}\right) = 1$	$y f\left(\frac{3}{y}\right) - 3 = +1$
$f\left(\frac{3}{y}+1\right) = 0$	$f\left(\frac{3}{y}\right) = 0$	$y f\left(\frac{3}{y}\right) - 3 = -3$

$y f(x) - 3$

$$y_2 = \sqrt{|y f(x) - 3|}$$

$|y f(x) - 3|$

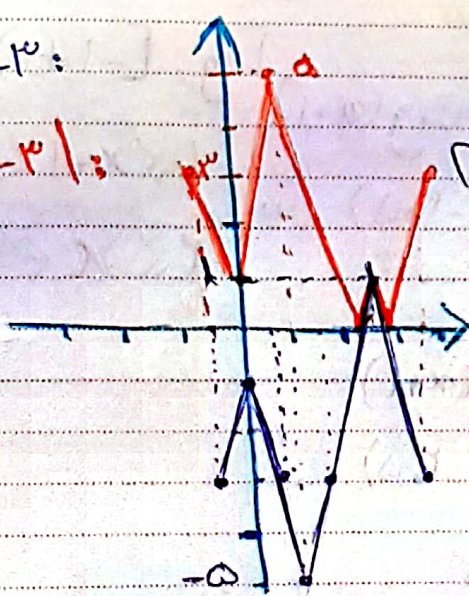
$$D_{y_2} = |y f(x) - 3| \geq 0$$

همواره برقرار است

$R_2 = [0, \omega]$

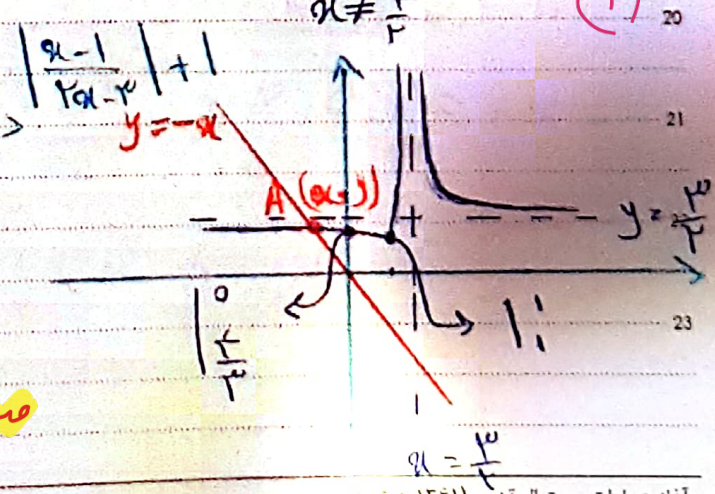
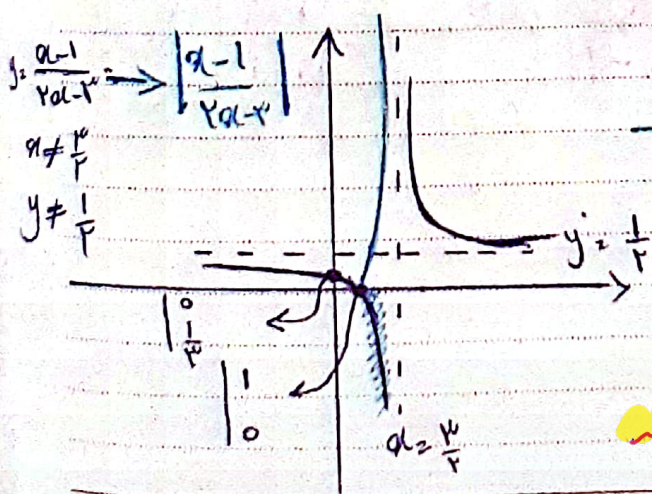
$$D_{y_2} = \left[-\frac{1}{y} \text{ و } \frac{3}{y}\right]$$

$$R_{y_2} = \sqrt{[0, \omega]} = [0, \sqrt{\omega}]$$



$$f(x) = \left| \frac{x+1}{2x+1} \right| \rightarrow \left| \frac{(x-2)+1}{2(x-2)+1} \right| + 1 = \left| \frac{x-1}{2x-3} \right| + 1$$

(۱۰)



صفحه آخر

$x = \frac{3}{2}$

$$x + g(x) < 0$$

$$g(x) < -x$$

$$\left| \frac{x+1}{2x-3} \right| + 1 < -x$$

7

نقطه برخورد $A(x, y)$

$-x$ و $g(x)$

$$-x = \left| \frac{x-1}{2x-3} \right| + 1$$

(از این معادله کسب می‌کنیم)

9

در محل برخورد منحنی $g(x)$ (سبز) پس داخل قدر مطلق را ~~نمی‌گذاریم~~ ~~برداریم~~

$$-x = \frac{1-x}{2x-3} + 1$$

$$-x-1 = \frac{1-x}{2x-3}$$

11

در این مرحله

$$(-x-1)(2x-3) = (1-x)$$

12

$$-2x^2 + 3x + 2x - 3 = 1 - x$$

$$2x^2 - 2x - 4 = 0$$

$$x^2 - x - 2 = 0$$

13

$$\Delta = 1 - 4(-1) = 5$$

14

$$x = \frac{1 \pm \sqrt{5}}{2} \quad x_A < 0, \quad x = \frac{1 - \sqrt{5}}{2}$$

15

$$g(x) < -x \rightarrow x < x_A \rightarrow x < \frac{1 - \sqrt{5}}{2}$$

16

$$x \in \left(-\infty, \frac{1 - \sqrt{5}}{2} \right)$$

17

1

2

3

sun

5

6

7

8

9

sun

12

13

14

15

16

17

sun

19

20

21

22

23

24

sun

26

27

28

29

30

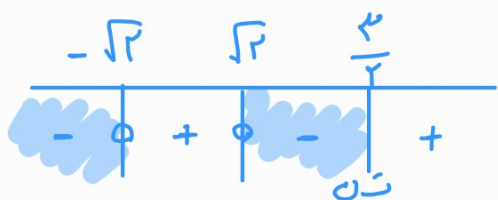
31

$$g(x) = \left| \frac{(x-2)+1}{2(x-2)+1} \right| + 1 = \left| \frac{x-1}{2x-3} \right| + 1$$

$$x + g(x) < 0 \rightarrow \left| \frac{x-1}{2x-3} \right| < -1-x$$

از این قدر مطلق بزرگتر شده پس باید مثبت باشد : $-1-x > 0 \rightarrow x < -1$

$$\xrightarrow{x < -1} \frac{x-1}{2x-3} < -1-x \rightarrow \frac{2x^2-4}{2x-3} < 0 \rightarrow \frac{2(x-\sqrt{2})(x+\sqrt{2})}{2x-3} < 0$$



$$\xrightarrow{x < -1} x < -\sqrt{2} \rightarrow (-\infty, -\sqrt{2})$$