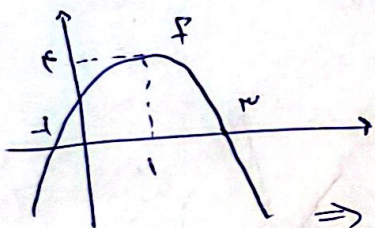


۱۹، ۵ آفرین!

1. $y = \frac{1}{3}x^2 + \frac{2}{5}x + 1 \rightarrow \frac{-b}{2a} = \beta = \frac{-\frac{2}{5}}{\frac{2}{3}} = \frac{3}{5}$ جایگزین $y_\beta = \frac{1}{3} \times \frac{9}{25} + \frac{2}{5} \times \frac{3}{5} + 1 =$
 $\Rightarrow \beta(\frac{3}{5}, \frac{21}{25}) \Rightarrow \beta'(\epsilon, \nu) = (\frac{3}{5}, \frac{21}{25}) \quad \frac{-r}{p\delta} + \frac{q}{r\delta} + \frac{r\delta}{r\delta} = \frac{21}{25}$ (۲)
 با اشتد $x \rightarrow x - \frac{11}{5}$ $\Rightarrow$ معادله جدید $y' = \frac{1}{3}(x - \frac{11}{5})^2 + \frac{2}{5}(x - \frac{11}{5}) + 1 + \frac{21}{25} \quad x - \frac{11}{5} = t$
 $y \rightarrow y + \frac{21}{25}$ $\frac{21}{25}$ اشتد $\frac{21}{25}$ $-\frac{1}{3}t^2 + \frac{2}{5}t + \frac{21}{25} = 0 \xrightarrow{\times 15}$ $-5t^2 + 6t + 21 = 0 \Rightarrow$
 $5t^2 - 6t - 21 = 0 \rightarrow (5t - 11)(5t + 12) = 0 \rightarrow t = \frac{11}{5}$
 $t = x - \frac{11}{5} \rightarrow x - \frac{11}{5} = \frac{11}{5} \rightarrow x = 4$
 $x - \frac{11}{5} = -\frac{12}{5} \rightarrow x = 1$ ج. آفرین ✓



$f(x) = -x^2 + 4x + 3$

2. $f(3x+2) = -(3x+2)^2 + 4(3x+2) + 3 =$
 $-9x^2 - 12x - 4 + 12x + 8 + 3 = -9x^2 - 9x + 7$
 $\Rightarrow -2f(3x+2) = 18x^2 + 18x - 14$ (۲)

$\Rightarrow -2f(3x+2) + 1 = 18x^2 + 18x - 13$

$\beta = \frac{-b}{2a} = \frac{-18}{2 \times 18} = \frac{-1}{2} = \alpha \xrightarrow{\text{جایگزین}}$ $18 \times \frac{1}{4} - \frac{18}{2} - 13 = 4.5 - 9 - 13 = -17.5 = -\frac{35}{2} = \beta$
 $\alpha \cdot \beta = \frac{-1}{2} \times -\frac{35}{2} = \frac{35}{4}$ ج. آفرین ✓

3. $y = 3 - \sqrt{2x}$ $\xrightarrow{\text{انتقال افقی}}$ $y' = 3 - \sqrt{2(x+1)} = 3 - \sqrt{2x+2}$ $\xrightarrow{\text{انتقال عمودی}}$ $y = \sqrt{2x+2} - 3$
 $x \rightarrow x+1$ $y_3 = \sqrt{2x+2} + 2 \xrightarrow{\text{بجایگزینی}}$ $\sqrt{2x+2} + 2 = \frac{4}{3} \rightarrow \sqrt{2x+2} = \frac{2}{3} \rightarrow 2x+2 = \frac{4}{9} \rightarrow 2x = -\frac{14}{9} \rightarrow x = -\frac{7}{9}$ ج. آفرین ✓

$$D_f = (a, r]$$

$$D_g = [-1, b]$$

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

$$Dy = (-r, a)$$

$$Dy = D_{f(x-1)} \cap D_{g(x+1)} \Rightarrow (a+1, a] \cap [-r, b] = (-r, a)$$

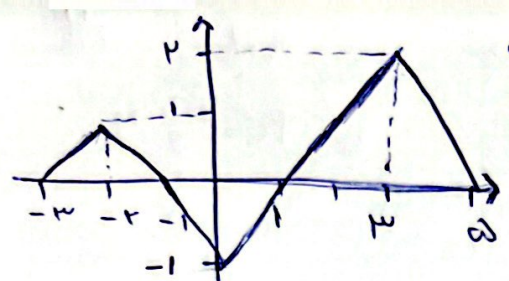
$$D_{f(x-1)}: a < x_f - 1 \leq r \\ a+1 < x_f \leq a \\ (a+1, a]$$

$$-1 \leq x_g + 1 < b \\ -r \leq x_g < b-1 \\ [-r, b-1)$$

$$a - b = -9$$

$$\begin{aligned} a = -1 & \leftarrow a+1 = -r \\ b = 4 & \leftarrow b-1 = a \end{aligned}$$

5



$$y_1 = f\left(\frac{x}{4} + 1\right)$$

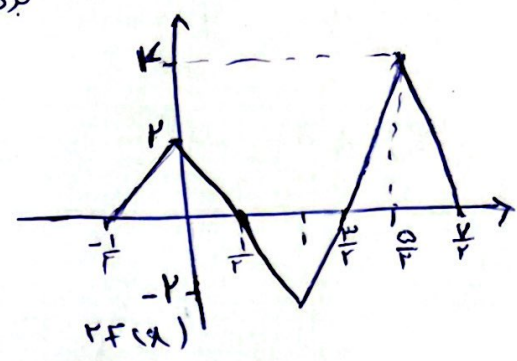
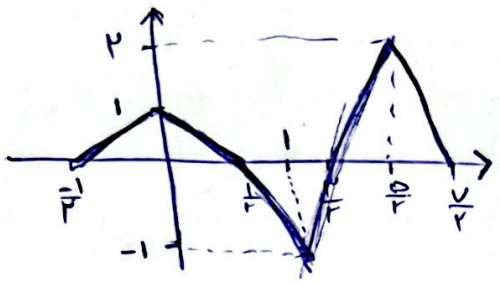
$$Dy_1 = [-3, 5] \rightarrow -3 \leq x \leq 5 \rightarrow -\frac{3}{4} \leq \frac{x}{4} \leq \frac{5}{4}$$

$$Ry_1 = [-1, 2] \rightarrow -1 \leq \frac{x}{4} + 1 \leq 2$$

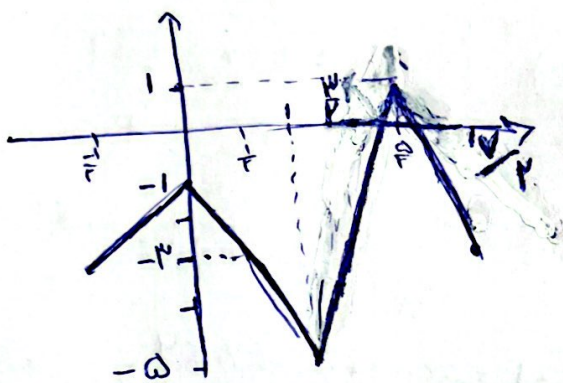
بردم تغییر کرد است.

2

کتاب f(x)



$$2f(x) - 3$$



$$y_2 = \sqrt{|2f(x) - 3|}$$

$$Dy_2 = \left[-\frac{1}{2}, \frac{1}{2}\right]$$

$$Ry_2 = [0, \sqrt{5}]$$

سین برای قدر مطلق داریم
از نمودار در تمام قسمت ها
از نمودار 2 را گرفته
یکدوم و به بالا معکوس
مستند می کنیم.

$$R_{1/2f(x) - 3} = [0, 5]$$

$$R_{\sqrt{|2f(x) - 3|}} = [0, \sqrt{5}]$$

6

$$y = \frac{x}{a} [ax]$$

از طرف محور اعداد مثبت و منفی

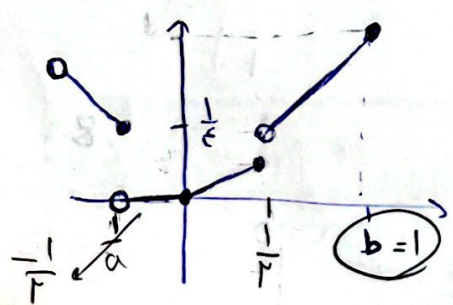
$$b - a = 3$$

متوجه شویم که مقدار a متغیر می باشد

از این به بالا مقدار کمتر از محور اعداد مثبت

شماره است.

2



$$0 < ax < 1 \rightarrow a < 0$$

$$\frac{1}{a} < x \leq 0 \rightarrow y = \frac{1}{a} \left[0 \times \frac{1}{a}\right] = \frac{1}{a^2}$$

بازای 1/a
مقدار 1/2

$$\frac{1}{a} = \frac{1}{2} \Rightarrow a = +2 \text{ و } -2$$

$$a = -2$$

$$y = \frac{x}{2} [-2x]$$

طول بازه ها از طرف محور متوجه شویم که 1/a است پس مقدار برابر با 1/2
b = 2 x 1/2 = 1

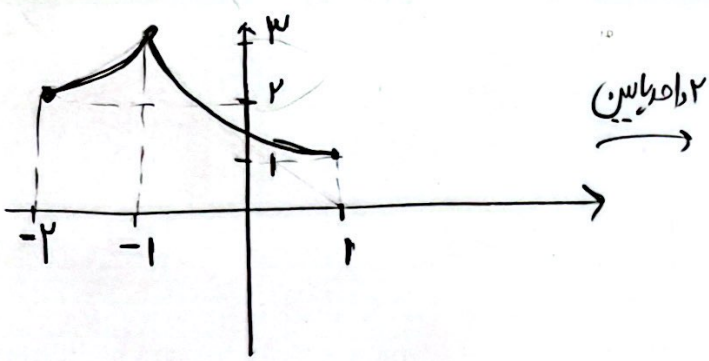
$$b - a = 1 - (-2) = 3$$

$$\begin{aligned}
 f(x) &= \log_p x \xrightarrow{\text{نقد ۲}} \log_p x+y \xrightarrow{\text{قرنت ۲}} -\log_p x+y \xrightarrow{\text{نقد ۳}} -\log_p x+y + \mu \\
 &\xrightarrow{\text{قرنت ۲}} -\log_p -x+y + \mu = g(x)
 \end{aligned}$$

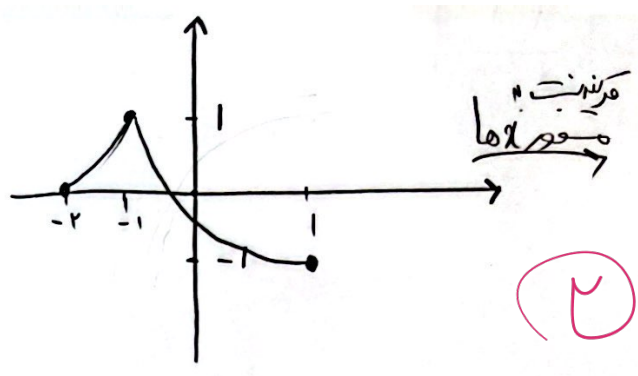
$$g(-14) + g(-42) = -\log_p 14 + \mu + -\log_p 42 + \mu = -4 + \mu + 4 + \mu = -4 + 2\mu$$

ج آفر ✓

(8)

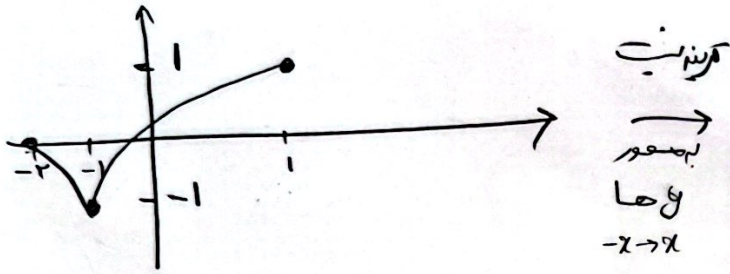


$$y_1 = -f(2-x) + 2$$

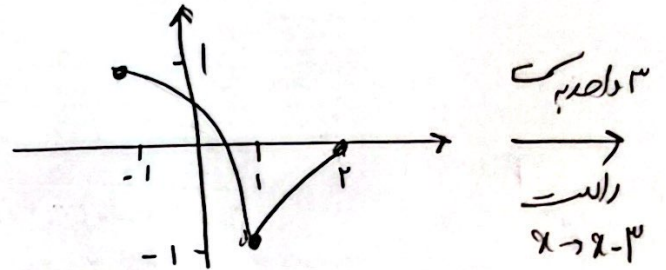


$$y = -f(2-x)$$

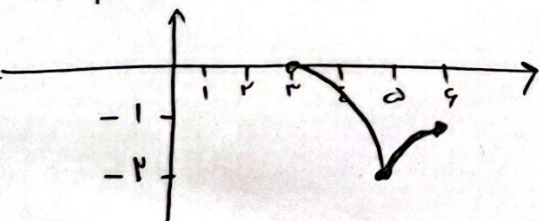
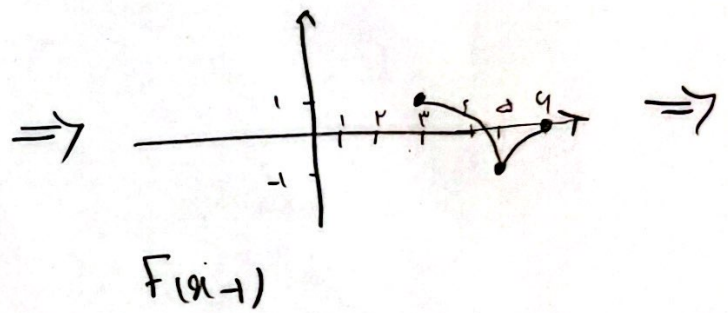
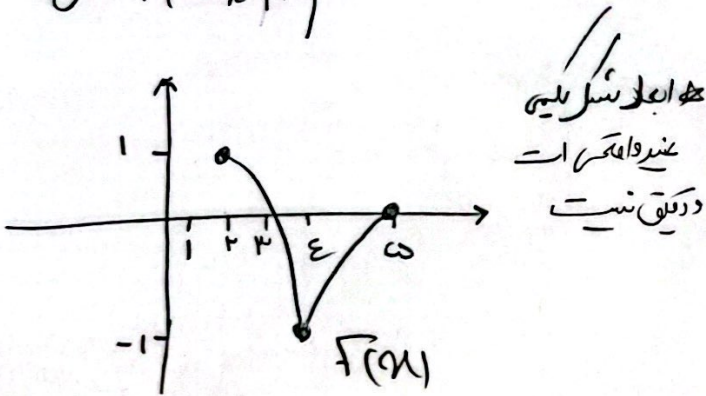
۲



$$y = f(-x + 3)$$



$$y = f(x + 3)$$



$$f(x-1) - 1$$

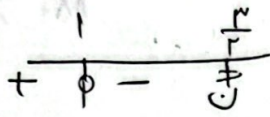
$$F(x) = \left| \frac{x+1}{2x+1} \right| \xrightarrow{x \rightarrow x-2} \left| \frac{(x-2)+1}{2(x-2)+1} \right| = \left| \frac{x-1}{2x-3} \right| \xrightarrow{g(x)=\left| \frac{x-1}{2x-3} \right| + 1} \frac{1}{0.9}$$

یک عبارت است

چون 2 و 1 منفرجه

$$x + \left| \frac{x-1}{2x-3} \right| + 1 < 0 \Rightarrow x + \frac{x-1}{2x-3} < 0 \Rightarrow \frac{2x^2 - 2x + x - 1}{2x-3} < 0 \Rightarrow \frac{2x^2 - x - 1}{2x-3} < 0$$

دافل در مطلق مثبت

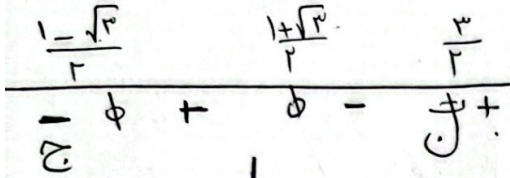


نقطه صلاحت

$$2x^2 - x - 1 = 0 \Rightarrow 2x - 3 = 0 \Rightarrow x = \frac{3}{2}$$

$$\frac{2 \pm \sqrt{4 - 4(2)(-1)}}{2} = \frac{2 \pm \sqrt{12}}{2} = \frac{1 \pm \sqrt{3}}{1}$$

صفت 1/2

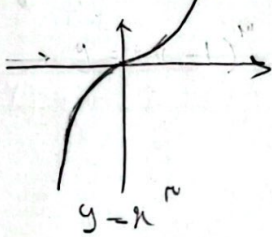
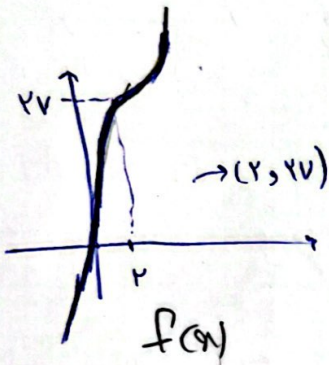


نقطه صلاحت

$$x \in (-\infty, \frac{1-\sqrt{3}}{2}]$$

$$\frac{x-1}{2x-3} < -1-x \Rightarrow \frac{2x^2 - 2x - 2x + 3}{2x-3} < 0 \Rightarrow \frac{2x^2 - 4x + 3}{2x-3} < 0$$

$$y = x^3 \rightarrow (2, 2V)$$



$$F(x) = \frac{1}{\lambda}(x-2)^3 + 2V$$

$$g(x) = \sqrt{2\lambda F(x) - F'(x)}$$

$$2\lambda F(x) - F'(x) \geq 0$$

$$\begin{cases} F(x) > 0 \\ F(x) \leq 2\lambda \\ 0 < \frac{1}{\lambda}(x-2)^3 + 2V \leq 2\lambda \\ -2V \leq \frac{1}{\lambda}(x-2)^3 \leq 1 \end{cases}$$

$$-2V \leq \frac{1}{\lambda}(x-2)^3 \leq 1$$

$$-3 \leq \frac{1}{\lambda}(x-2)^3 \leq 1$$

$$-3 \leq \frac{1}{\lambda}(x-2)^3 \leq 1$$

$$0 < \frac{1}{\lambda}(x-2)^3 \leq 1$$

$$0 < \frac{1}{\lambda}(x-2)^3 \leq 1$$

مات 2 - در صورتی

مات 2 - در صورتی

$$F(x) \leq 0 \rightarrow \frac{1}{\lambda}(x-2)^3 \leq -2V \rightarrow \frac{1}{\lambda}(x-2)^3 \leq -2 \rightarrow x \leq 0$$

$$F(x) \geq 2\lambda \rightarrow \frac{1}{\lambda}(x-2)^3 + 2V \geq 2\lambda \rightarrow \frac{1}{\lambda}(x-2)^3 \geq 2 \rightarrow \frac{1}{\lambda}(x-2)^3 \geq 2$$

2 - است که نازد غیر ممکن قبول

$$\frac{1}{\lambda}(x-2)^3 \geq 2$$

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$$\frac{1}{\lambda}(x-2)^3 \geq 2$$

2 - است