

نام و نام خانوادگی: / میر حسین میری پاسخنامه تشریحی تکلیف شماره ۷... کلاس... دوازدهم

$$D_f(x) = [-2, 4] \rightarrow -2 \leq \frac{3x+2}{2} < 4 \rightarrow -4 \leq 3x+2 < 8$$

$$-12 \leq 3x < 11 \rightarrow -4 \leq x < 4$$

$$L_{D_{f(3x+2)}} = [-4, 4]$$

$$f(3x-2) \rightarrow D = [-2, 3]$$

$$x = -2 \rightarrow f(-1) \Rightarrow D_f = [-1, 7]$$

$$x = 3 \rightarrow f(7)$$

روش ۲: برای تبدیل $f(3x-2)$ به $f(x)$ ، نخست طول‌ها را سه برابر می‌کنیم و سپس آن‌ها را دو واحد به چپ می‌بریم:

$$[-2, 3] \xrightarrow{\times 3} [-6, 9] \xrightarrow{-2} [-4, 7]$$

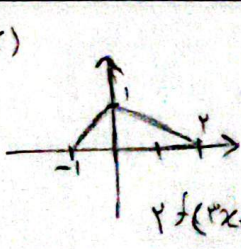
$$f\left(\frac{3x+1}{4}\right) \xrightarrow{x=-1} -1 \rightarrow D_f = [-1, 4]$$

$$L_{D_f} = [-1, 4] \xrightarrow{x=4} 4$$

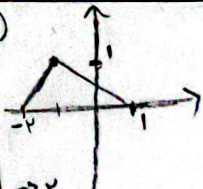
$$D_{f\left(\frac{3x+1}{4}\right)} = -1 \leq \frac{3x+1}{4} < 4 \rightarrow -3 \leq 3x+1 < 17 \rightarrow -\frac{3}{4} \leq x < \frac{3}{4}$$

$$L = \left(-\frac{3}{4}, \frac{3}{4}\right)$$

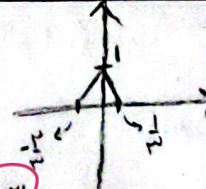
$f(x)$



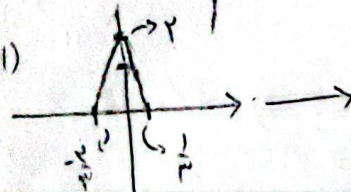
$f(x+1)$



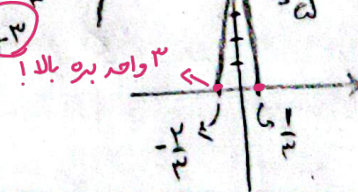
$f(3x+1)$



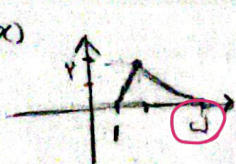
صفحه آفد



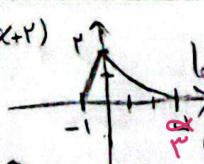
$2f(3x+1)$



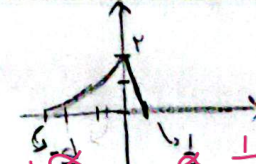
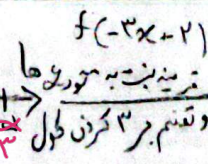
$f(x)$



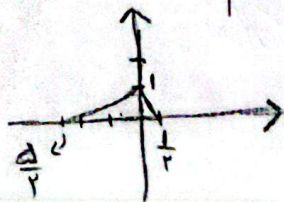
$f(x+2)$



$f(-3x+2)$



$$\frac{1}{4}f(-3x+2)$$



صفحه آفد

ضابطہ سے
ازتفریح $\Rightarrow y = -\frac{1}{4}(x-4)^2 + 3$

$$\rightarrow -\frac{1}{y} \overbrace{(x-f)^2}^{\text{✓}} + 3 = 0 \rightarrow (x-f)^2 = 9 \xrightarrow{\text{sqrt}} x-f = \pm\sqrt{9}$$

$x = 4 + \sqrt{6}$
 $x = 4 - \sqrt{6}$

(۴۱) → رأس ہستی تابع

$$f(x, y) = 1 - 2x + y \quad \text{subject to} \quad x^2 + y^2 = 1$$

$$\nabla f(x, y) = \langle -2, 1 \rangle$$

$$\nabla g(x, y) = \langle 2x, 2y \rangle$$

$$\nabla f(x, y) = \lambda \nabla g(x, y) \Rightarrow \langle -2, 1 \rangle = \lambda \langle 2x, 2y \rangle$$

$$\Rightarrow \begin{cases} -2 = 2\lambda x \\ 1 = 2\lambda y \end{cases} \Rightarrow \begin{cases} \lambda = -\frac{1}{x} \\ \lambda = \frac{1}{2y} \end{cases} \Rightarrow -\frac{1}{x} = \frac{1}{2y} \Rightarrow x = -2y$$

$$x^2 + y^2 = 1 \Rightarrow (-2y)^2 + y^2 = 1 \Rightarrow 4y^2 + y^2 = 1 \Rightarrow 5y^2 = 1 \Rightarrow y^2 = \frac{1}{5} \Rightarrow y = \pm \frac{1}{\sqrt{5}}$$

$$x = -2y \Rightarrow x = \mp \frac{2}{\sqrt{5}}$$

$$\text{Critical points: } \left(-\frac{2}{\sqrt{5}}, \frac{1}{\sqrt{5}} \right), \left(\frac{2}{\sqrt{5}}, -\frac{1}{\sqrt{5}} \right)$$

$$f\left(-\frac{2}{\sqrt{5}}, \frac{1}{\sqrt{5}}\right) = 1 - 2\left(-\frac{2}{\sqrt{5}}\right) + \frac{1}{\sqrt{5}} = 1 + \frac{4}{\sqrt{5}} + \frac{1}{\sqrt{5}} = 1 + \frac{5}{\sqrt{5}} = 1 + \sqrt{5}$$

$$f\left(\frac{2}{\sqrt{5}}, -\frac{1}{\sqrt{5}}\right) = 1 - 2\left(\frac{2}{\sqrt{5}}\right) - \frac{1}{\sqrt{5}} = 1 - \frac{4}{\sqrt{5}} - \frac{1}{\sqrt{5}} = 1 - \frac{5}{\sqrt{5}} = 1 - \sqrt{5}$$

$$\text{Boundary points: } (1, 0), (-1, 0), (0, 1), (0, -1)$$

$$f(1, 0) = 1 - 2(1) + 0 = -1$$

$$f(-1, 0) = 1 - 2(-1) + 0 = 3$$

$$f(0, 1) = 1 - 2(0) + 1 = 2$$

$$f(0, -1) = 1 - 2(0) - 1 = 0$$

$$\text{Maximum value: } 1 + \sqrt{5} \text{ at } \left(-\frac{2}{\sqrt{5}}, \frac{1}{\sqrt{5}} \right)$$

$$\text{Minimum value: } 1 - \sqrt{5} \text{ at } \left(\frac{2}{\sqrt{5}}, -\frac{1}{\sqrt{5}} \right)$$

$$f(1) = 1 \Rightarrow 1 - f(1) = 1 - 1 = -1 \Rightarrow \beta = -1$$

$$\alpha\beta = \left(-\frac{1}{\sqrt{2}}\right)(-V) = \boxed{\frac{1}{\sqrt{2}}}$$

$$D_f = (a, f] \quad D_g = [-1, b) \quad (a+1, d] \cap [-2, b-1) = (-2, d)$$

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

$$\hookrightarrow D = (-r, d)$$

$$\begin{aligned} \rightarrow a+1 &= -7 \rightarrow \boxed{a = -8} \\ \rightarrow b-1 &= 2 \rightarrow \boxed{b = 3} \end{aligned} \Rightarrow a-b = -8-3 = \boxed{-11}$$

$$a < x-1 \leq r$$

$$\begin{array}{l|l} a < x-1 \leq f & -1 \leq x+1 < b \\ a+1 < x \leq d \Rightarrow D_{f(x-1)} = (a+1, d] & -1 \leq x < b-1 \Rightarrow D_{g(x+1)} = [-1, b-1) \end{array}$$

$$f\left(\frac{x}{y}+1\right) \begin{cases} D_f = [-3, 4] \\ R_f = [-1, 2] \end{cases}$$

باجایندازی دو
سر دانه دانه
(۲) هر راسی یا هم

$$\begin{matrix} x = -1 \\ \swarrow \quad \searrow \\ -\frac{1}{p} \\ \downarrow \\ \frac{v}{p} \end{matrix} \rightarrow D_x = \left[-\frac{1}{p}, \frac{v}{p}\right]$$

$$D_{g_1} = \left[-\frac{1}{r}, \frac{v}{r} \right]$$

$$R_f = [1, \sqrt{a}]$$

$$y_1 = \sqrt{|f(x) - 3|}$$

$$-1 \leq f(x) \leq 2 \rightarrow -2 \leq f(x) - 3 \leq 1 \rightarrow \text{مفرد هم دارد (نه)}$$

$$-2 \leq f(x) \leq 2 \quad \hookrightarrow |f(x) - 3| \in [\overset{0}{-2}, 2] \Rightarrow 1 \leq \sqrt{|f(x) - 3|} \leq \sqrt{2} \quad \text{منه أخذ}$$

$$f(x) = \left| \frac{x+1}{2x+1} \right| \xrightarrow[\text{یک واحد بالا}]{\text{۲ واحد راست}} g(x) = \left| \frac{(x-2)+1}{2(x-2)+1} \right| + 1 = \left| \frac{x-1}{2x-3} \right| + 1$$

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

چون در این بازه صورت ≥ 0 است

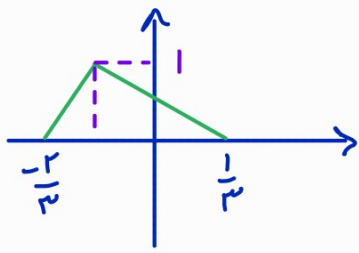
$$1x^2 - 2 - \frac{1}{4}x - 1 \rightarrow 1x^2 - \frac{9}{4}$$

$$\rightarrow \frac{(x+1)(x-4) + (x-1)}{x-4}$$

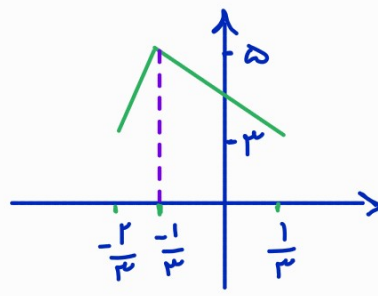
$\frac{2(x^2-2)}{2x-3} < 0$

$$x^2 - 4 > 0 \Rightarrow x > \sqrt{4} \vee x < -\sqrt{4}$$

پہلے جواب سوال
 $(-\infty, \sqrt{2})$

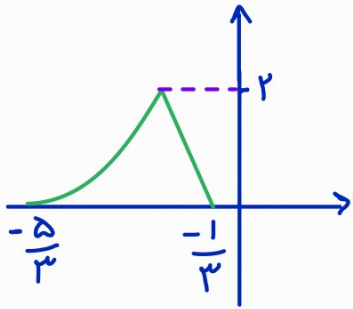


$$y = f(x_n + 1)$$



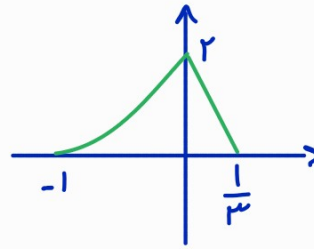
$$y = 2f(x_n + 1) + 3$$

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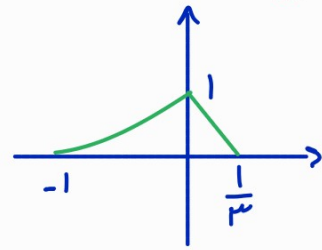
$$y = f(-x_n)$$

واحد به راست $\frac{2}{\mu}$



$$y = f(-x(x - \frac{2}{\mu}))$$

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



$$y = \frac{1}{\mu} f(x - x_n)$$

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رأس: $(h, K) \xrightarrow{\text{معادله خط}} y = a(x-h)^r + K = -\frac{1}{\mu}x^r + \frac{2}{\Delta}x + 1 \rightarrow a = -\frac{1}{\mu}$

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رأس: $(4, 3) \rightarrow y = -\frac{1}{\mu}(x-4)^r + 3 \xrightarrow{y=0} -\frac{1}{\mu}(x-4)^r = -3 \rightarrow \begin{cases} x=7 \\ x=1 \end{cases}$

$$D_{y_1} = [-3, 5] \rightarrow -3 \leq x \leq 5 \rightarrow -\frac{1}{\mu} \leq \frac{x}{\mu} + 1 \leq \frac{5}{\mu} \Rightarrow D_f = [-\frac{1}{\mu}, \frac{5}{\mu}]$$

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$$R_{y_1} = [-1, 2] \rightarrow -1 \leq f \leq 2 \rightarrow -5 \leq 2f - 3 \leq 1 \rightarrow 0 \leq |2f - 3| \leq 5$$

$$0 \leq \sqrt{|2f - 3|} \leq \sqrt{5} \Rightarrow R_f = [0, \sqrt{5}]$$