

۱۸، ۵

$$-2 \leq \frac{3x+2}{5} \leq 4 \Rightarrow -10 \leq 3x+2 \leq 20$$

$$\Rightarrow -12 \leq 3x \leq 18 \Rightarrow -4 \leq x \leq 6 \Rightarrow D_{f(\frac{3x+2}{5})} = [-4, 6]$$

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$$D = [-2, 3] \Rightarrow -2 \leq x \leq 3 \Rightarrow -6 \leq 3x \leq 9$$

$$\Rightarrow -1 \leq 3x-2 \leq 7 \Rightarrow D_{f(x)} = [-1, 7]$$

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$$-1 < x < 3 \Rightarrow -3 < 3x < 9 \Rightarrow -2 < 3x+1 < 10 \Rightarrow -1 < \frac{3x+1}{4} < \frac{10}{4}$$

$$\Rightarrow f\left(\frac{1}{4}, \frac{10}{4}\right) \Rightarrow -1 < -5x+2 < \frac{10}{4} \Rightarrow -3 < -5x < \frac{3}{2}$$

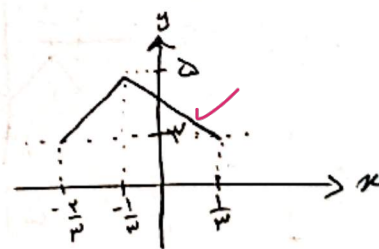
$$\Rightarrow -3 < 5x \leq \frac{3}{2} \Rightarrow -\frac{3}{5} < x \leq \frac{3}{10} \Rightarrow D_{f(\frac{3x+1}{4})} = \left(-\frac{3}{5}, \frac{3}{10}\right]$$

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$$3x+1 = -1 \Rightarrow x = -\frac{2}{3} \Rightarrow y = 2(0)+3 = 3$$

$$3x+1 = 0 \Rightarrow x = -\frac{1}{3} \Rightarrow y = 2(1)+3 = 5$$

$$3x+1 = 2 \Rightarrow x = \frac{1}{3} \Rightarrow y = 2(0)+3 = 3$$



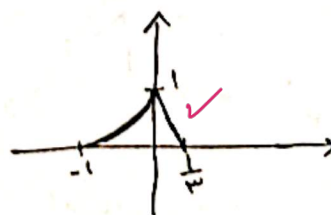
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$$-3x+2=1 \Rightarrow x = \frac{1}{3} \Rightarrow y = \frac{1}{x}(0) = 0$$

$$-2x+2=5 \Rightarrow x = -1 \Rightarrow y = \frac{1}{x}(0) = 0$$

$$-2x+2=2 \Rightarrow x = 0 \Rightarrow y = \frac{1}{x}(2) = 1$$

(x ضریب منفی دارد پس شکل نسبت به محور y ها نیز قرینه می شود.)



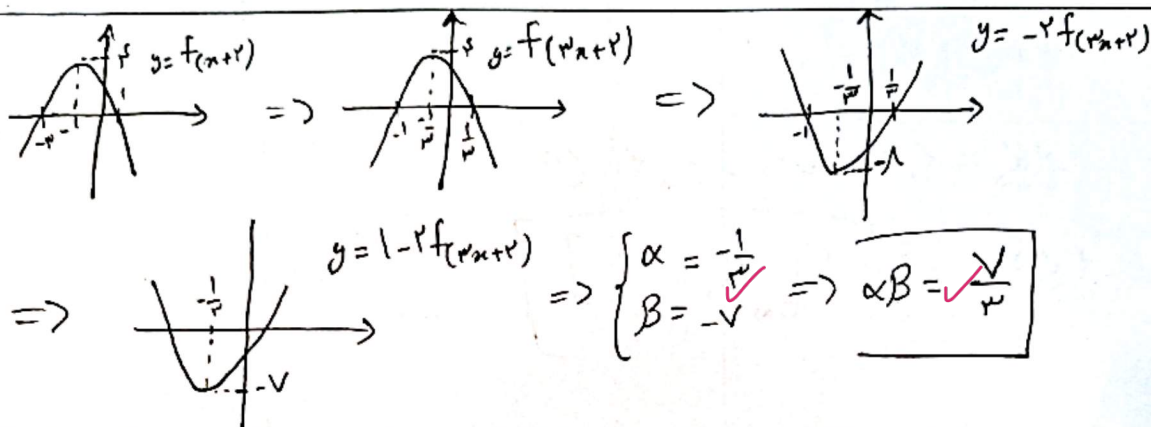
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وقت! $(2, 3)$ رأس $\Rightarrow$ ضرب x تغییری نمی‌کند

$$\Rightarrow -\frac{1}{3}(x-3)^2 + 4 = 0 \Rightarrow (x-3)^2 = 12 \Rightarrow x-3 = \pm 2\sqrt{3}$$

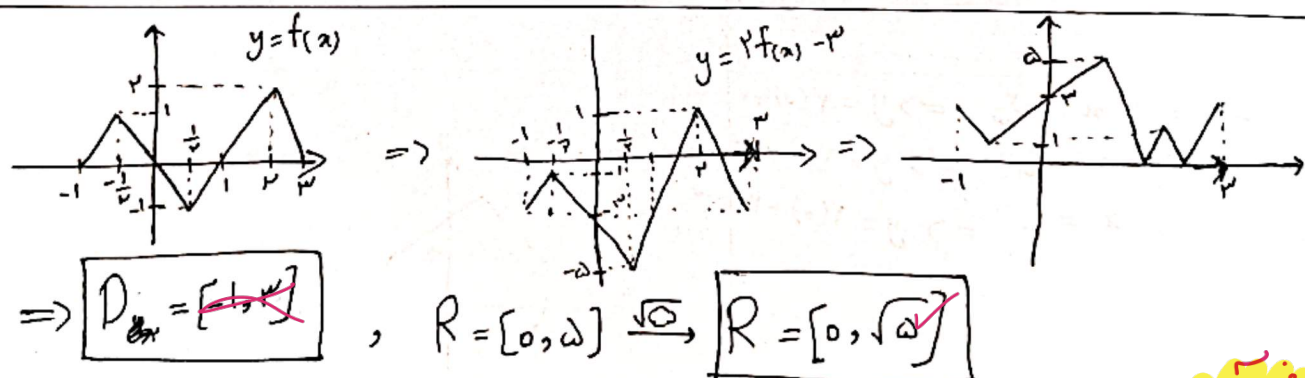
$$\Rightarrow x = \pm 2\sqrt{3} + 3$$

صفحه آخر



$D_{f(x+1)} = (\alpha+1, \omega]$
 $D_{g(x+1)} = [-2, b-1]$
 $D_{f(x+1)} \cap D_{g(x+1)} = (-2, \omega) \Rightarrow \begin{cases} \alpha+1 = -2 \Rightarrow \alpha = -3 \\ b-1 = \omega \Rightarrow b = 6 \end{cases}$

$a-b = -3-6 = -9$



صفحه آخر

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

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

$x + g(x) < 0 \Rightarrow g(x) < -x$
 $(-\infty, ?)$

$\Rightarrow \begin{cases} x_1 = \sqrt{2} \text{ غلط} \\ x_2 = -\sqrt{2} \text{ قی} \\ x_3 = \frac{\sqrt{5}+1}{2} \text{ غلط} \\ x_4 = \frac{-(5+1)}{2} \text{ غلط} \end{cases}$

با جایگذاری در معادله
 می‌توانیم قابل قبول نمی‌شوند
 جز $-\sqrt{2}$

$\Rightarrow$ مجموعه جواب $= (-\infty, -\sqrt{2})$

رأس: $(h, K) \xrightarrow{\text{معادله خط}} y = a(n-h)^r + K = -\frac{1}{r}n^r + \frac{r}{\Delta}n + 1 \rightarrow a = \frac{-1}{r}$ -9

رأس: $(r, r) \rightarrow y = -\frac{1}{r}(n-r)^r + r \xrightarrow{y=0} -\frac{1}{r}(n-r)^r = -r \rightarrow \begin{cases} n = V \\ n = 1 \end{cases}$

$D_{y_1} = [-r, \Delta] \rightarrow -r \leq n \leq \Delta \rightarrow -\frac{1}{r} \leq \frac{n}{r} + 1 \leq \frac{V}{r} \Rightarrow D_f = \left[-\frac{1}{r}, \frac{V}{r}\right]$ -9

$R_{y_1} = [-1, r] \rightarrow -1 \leq f \leq r \rightarrow -\Delta \leq rf - r \leq 1 \rightarrow 0 \leq |rf - r| \leq \Delta$

$0 \leq \sqrt{|rf - r|} \leq \sqrt{\Delta} \Rightarrow R_f = [0, \sqrt{\Delta}]$