

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

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

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

$$\Rightarrow -8 \leq 3x-2 \leq 7 \Rightarrow D_{f(x)} = [-8, 7]$$

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$$-1 < x < 3 \Rightarrow -3 < 3x < 9 \Rightarrow -2 \leq 3x+1 < 10 \Rightarrow -1 < \frac{3x+1}{4} < 5$$

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

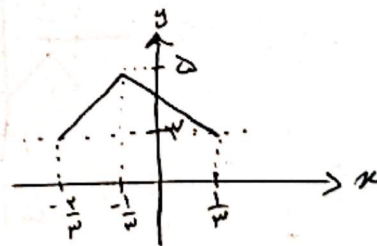
$$\Rightarrow -3 < 5x \leq 3 \Rightarrow -\frac{3}{5} < x \leq \frac{3}{5} \Rightarrow D_{f(\frac{3x+1}{4})} = \left(-\frac{3}{5}, \frac{3}{5}\right]$$

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

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

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



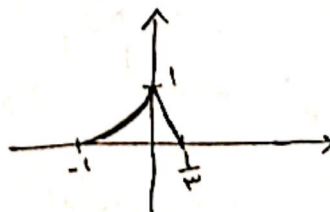
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$$-3x+2=1 \Rightarrow x=\frac{1}{3} \Rightarrow y=\frac{1}{4}(0)=0$$

$$-2x+2=5 \Rightarrow x=-1 \Rightarrow y=\frac{1}{4}(0)=0$$

$$-2x+2=2 \Rightarrow x=0 \Rightarrow y=\frac{1}{4}(2)=1$$

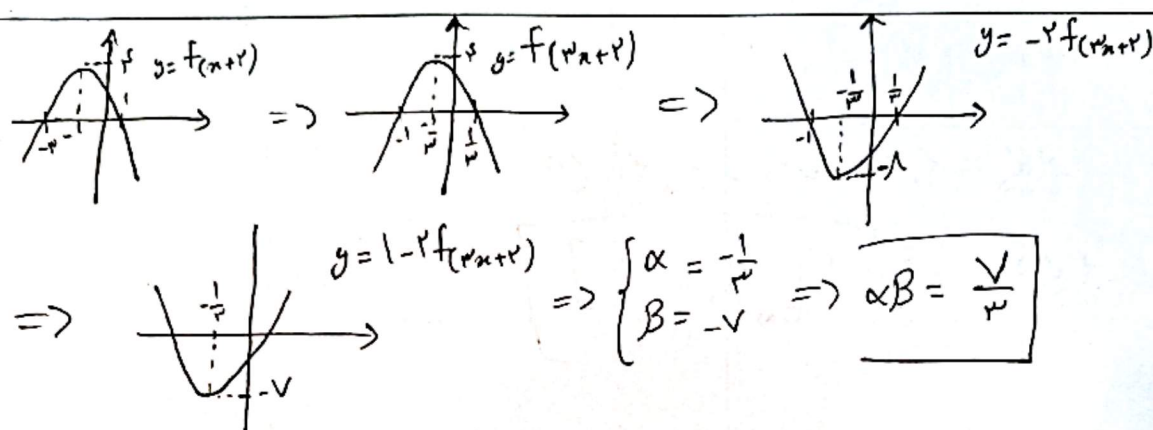
(x ضریب منفی دارد پس شکل نسبت به محور y ها نیز قرینه می شود.)



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$$\begin{aligned} \text{ضرب } x^2 \text{ تغییر نمی‌کند} \Rightarrow y = -\frac{1}{3}(x-3)^2 + 4 \\ \Rightarrow -\frac{1}{3}(x-3)^2 + 4 = 0 \Rightarrow (x-3)^2 = 12 \Rightarrow x-3 = \pm 2\sqrt{3} \\ \Rightarrow x = \pm 2\sqrt{3} + 3 \end{aligned}$$

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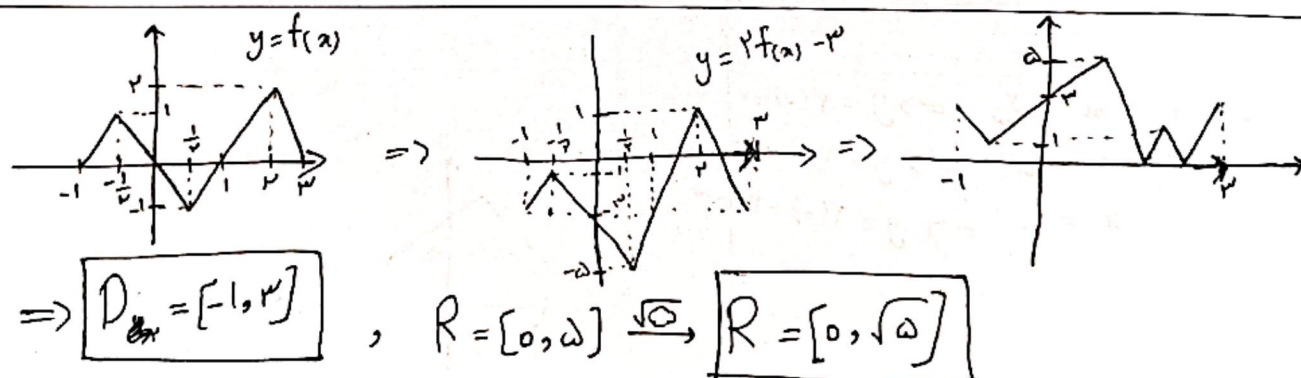


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$$\begin{aligned} D_{f(x+1)} &= (a+1, \omega) \\ D_{g(x+1)} &= [-2, b-1] \\ D_{f(x+1)} \cap D_{g(x+1)} &= (-2, \omega) \Rightarrow \begin{cases} a+1 = -2 \Rightarrow a = -3 \\ b-1 = \omega \Rightarrow b = 6 \end{cases} \end{aligned}$$

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

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$$\begin{aligned} g(x) &= \left| \frac{x-1}{2x-3} \right| + 1 \Rightarrow x + g(x) < 0 \Rightarrow g(x) < -x \\ & \quad (-\infty, ?) \end{aligned}$$

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

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$$\begin{aligned} \Rightarrow \begin{cases} x_1 = \sqrt{2} \text{ غلط} \\ x_2 = -\sqrt{2} \text{ قی} \\ x_3 = \frac{\sqrt{5}+1}{2} \text{ غلط} \\ x_4 = \frac{-(5+1)}{2} \text{ غلط} \end{cases} \begin{aligned} &\text{با جایگذاری در معادله} \\ &\text{می‌توانیم قابل قبول نمی‌شوند} \\ &\text{جز } -\sqrt{2} \end{aligned} \Rightarrow \text{مجموعه جواب منتهی} = (-\infty, -\sqrt{2}) \end{aligned}$$