

۱۹,۲۵ آزمون!

الف) $-4 \leq 3x - 2 \leq 4 \Rightarrow -2 \leq 3x \leq 6 \Rightarrow -\frac{2}{3} \leq x \leq \frac{4}{3}$

$\Rightarrow D_g = \left[-\frac{2}{3}, \frac{4}{3}\right]$ ✓

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ب) $-4 \leq x \leq -2 \Rightarrow -12 \leq 3x \leq -6 \Rightarrow -14 \leq 3x - 2 \leq -8$

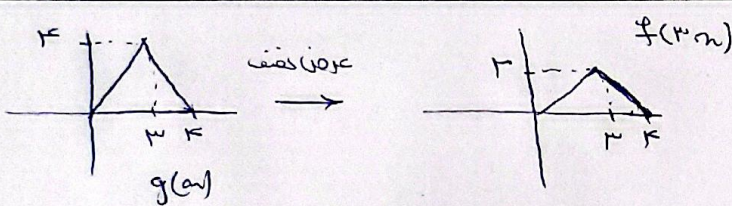
$\Rightarrow D_g = [-14, -8]$ ✓

$f(x) = x + \sqrt{x-2}$ $\xrightarrow{\text{انتقال طولی}}$ $f(x) = x-2 + \sqrt{x-2}$ $y = x-2$
 قریب نیست به y
 همان وارون کردن است

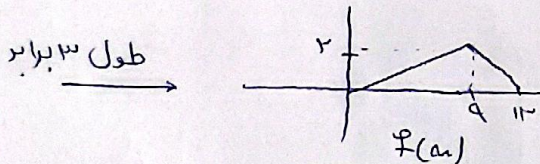
$x = y - 2 + \sqrt{y-2}$

$y = y - 2 + \sqrt{y-2} \Rightarrow \sqrt{y-2} = 2 \Rightarrow y-2 = 4 \Rightarrow y = 6$ ✓

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انتقال طولی در مساحت تاثیر ندارد:



$S = \frac{12 \times 2}{2} = 12$ ✓

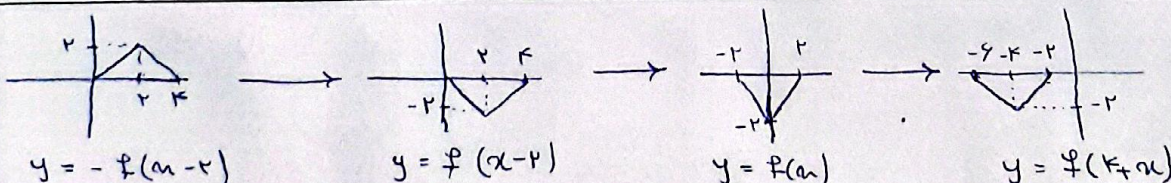
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$-3 = f(2)$ $\frac{x-a}{2} = 2 \Rightarrow x-a=4 \Rightarrow x=a+4$

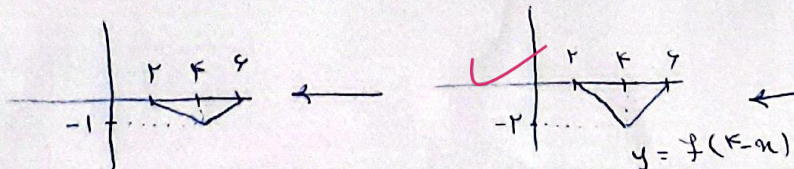
$a+2f(2) = a-6 \Rightarrow A' = (a+4, a-6)$

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$a-6 = 2a+1-1 \Rightarrow a = -6$ ✓



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$$-(x+2) \neq (3m-1) \Rightarrow 0$$

$$f(m) = 0 \Rightarrow x = 0, 2, -1$$

$$f(3m-1) = 0 \Rightarrow \begin{cases} 3m-1 = 0 \Rightarrow x = 2 \\ 3m-1 = 2 \Rightarrow x = 1 \\ 3m-1 = -1 \Rightarrow x = 0 \end{cases}$$

$$x = -2$$

	-2	0	1	2
$(x+2)$	-	+	+	+
$f(3m-1)$	-	-	+	+
f	+	-	+	+

$$\Rightarrow D_y = [-2, 0] \cup [1, 2]$$

$$g(m) = |2(x+k) - 3| + 1 - 3 \Rightarrow g(x) = |2x + 2k - 3| + 1 - 3 = |2x - 3| + 1$$

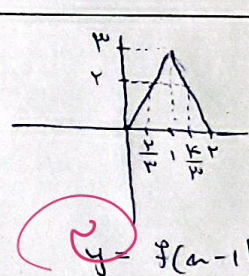
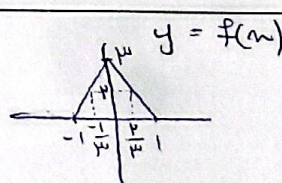
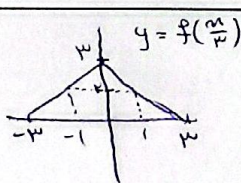
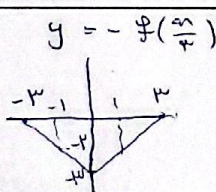
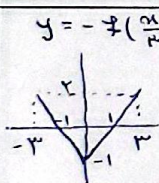
$$x = 0 \Rightarrow |2k - 3| - 2 = |-3| + 1$$

$$\Rightarrow \begin{cases} 2k - 3 = 2 \Rightarrow 2k = 5 \Rightarrow k = \frac{5}{2} \\ 2k - 3 = -6 \Rightarrow 2k = -3 \Rightarrow k = -\frac{3}{2} \end{cases}$$

$$g(m) = \frac{1 - \frac{30k}{2}}{\frac{x}{2} + 1} + k = \frac{2x - 1}{x + 1} \Rightarrow k = \frac{2x - 1(x + 3)}{x + 1(x + 3)} + \frac{-3 + 2x(x + 1)}{x + 3(x + 1)}$$

$$\Rightarrow \frac{2x^2 - x + 2x - 3 - 3x + 2x^2 - 3 + 2x}{(x + 1)(x + 3)} \Rightarrow \frac{4x^2 + 4x - 6}{(x + 1)(x + 3)} = k \Rightarrow kx^2 + kx + 3k = 4x^2 + 4x - 6$$

$$\Rightarrow kx^2 - 4x^2 + kx - 4x + 3k - 6 = 0 \Rightarrow k - 4 = 0 \Rightarrow k = 4$$



$$S = \frac{1 \times \frac{4}{3}}{2} = \frac{1}{3}$$

مساحت مثلث قائم‌الزاویه

$$S_1 + S_2 = \frac{a}{2} \Rightarrow \frac{(a-2)^2}{2} + \frac{4x-2}{2} = \frac{a}{2} \Rightarrow (a-2)^2 = 1 \Rightarrow a = 3$$

$$\Rightarrow a = 2 + \sqrt{14} \quad f\left(\frac{1}{2 + \sqrt{14}}\right) = \left|\frac{1}{2} - 2\right| - 2 \Rightarrow \left|\frac{1-2}{2}\right| - 2 \Rightarrow \left|\frac{-1}{2}\right| - 2 = \frac{1}{2} - 2 = -\frac{3}{2}$$

$$\Rightarrow \frac{2 + \sqrt{14}}{2 + \sqrt{14}} - 2 \Rightarrow \frac{14 - 3\sqrt{14}}{2 + \sqrt{14}} \quad f\left(\frac{1}{2}\right) = \left|\frac{1}{2} - 2\right| - 2 = -\frac{3}{2}$$