

الف)  $-4 \leq 3x-2 \leq 2 \rightarrow -\frac{2}{3} \leq x \leq \frac{4}{3} \quad D_{f(x-2)} \in [-\frac{2}{3}, \frac{4}{3}]$

ب)  $-4 \leq x \leq -2 \rightarrow -12 \leq 3x \leq -6 \rightarrow -14 \leq 3x-2 \leq -8 \quad D_f \in [-14, -8]$

$y = (x-2) + \sqrt{(x-2)-2}$  سوی تابع را  $x = y-2 + \sqrt{y-4}$   
عکس می کنیم

$D_f = R_{f^{-1}} \rightarrow x \geq 4 \quad (y=x-2) \quad x+2 = y + \sqrt{y-4}$

برخورد تابع به خط از ناحیه اول به معنی آن برخورد به عکس تابع و خود تابع

$y = x$

$x = x-2 + \sqrt{x-4} \rightarrow 2 = \sqrt{x-4} \rightarrow x = 8 \quad \boxed{y=8}$  جواب



اشغال طولی در مساحت نهی ندارد پس از ۱ + صرف نظری کنیم فقط ۱/۲ مساحت

$D_g \rightarrow (0, 4) \times 2 \rightarrow (1, 2) \rightarrow$  مساحت  $0 \leq x \leq 4 \rightarrow 1 \leq 3x+1 \leq 13$

$R_g \rightarrow 0 \leq y \leq 2 \rightarrow 4 \times 2 \rightarrow (8) \rightarrow$  ارتفاع  $S = \frac{12 \times 8}{2} = \boxed{48}$  جواب

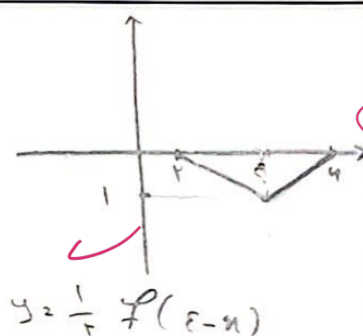
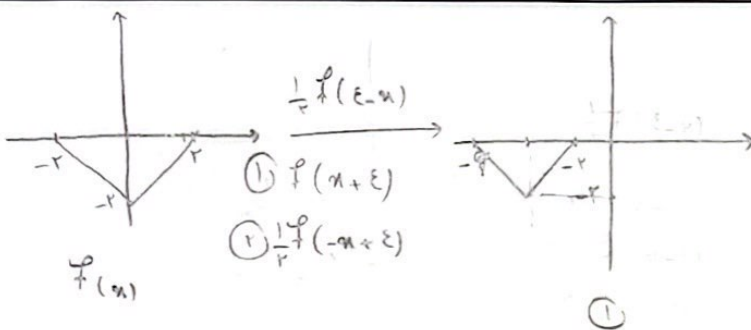
$D_g \rightarrow 0 \leq x \leq 4 \rightarrow 1 \leq 3x+1 \leq 13 \rightarrow D_f \in [1, 13]$

$\frac{12 \times 2}{2} = (12)$

$f(x) = -x$

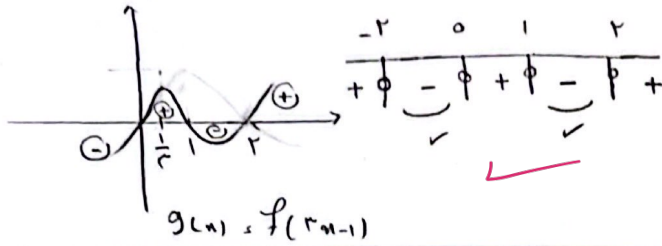
$\frac{x-a}{2} = 2 \rightarrow x = 4+a \quad y = 2x-1$  جواب  
 $a-4 = 1+2a-1 \rightarrow \boxed{a = -4}$

$y = a + 2f(x) \rightarrow y = a-4$   
 $2x=2$



$$y = \sqrt{-(n+2)f(2n-1)}$$

$$D_g \in [-2, 0] \cup [1, 2] \quad \text{جواب}$$

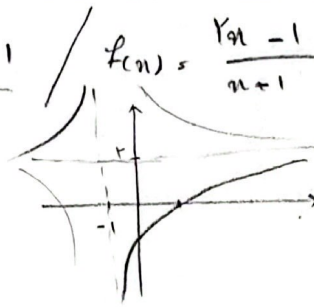
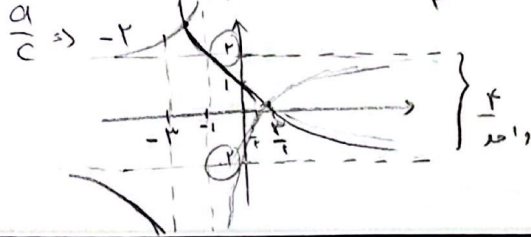


$$g(n) = |2(n+K) - 3| + 1 - 3 \rightarrow |2n + 2K - 3| - 2$$

$$\text{در } y=0 \Rightarrow |y| \rightarrow f(0) = |1-3| + 1 = 2$$

$$g(n) = 4 \rightarrow |2K-3| - 2 = 4 \rightarrow |2K-3| = 6 \rightarrow 2K-3 = 6 \text{ یا } 2K-3 = -6 \rightarrow K = \frac{9}{2} \text{ یا } K = -\frac{3}{2}$$

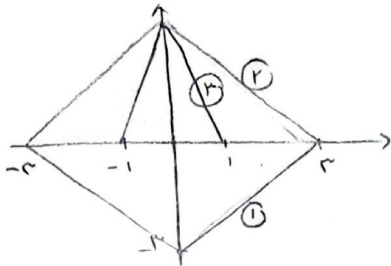
$$y = -\left(\frac{2(\frac{n}{2}) - 1}{(\frac{n}{2}) + 1}\right) \Rightarrow \frac{-\frac{1}{2}n + 1}{\frac{1}{2}n + 1}$$



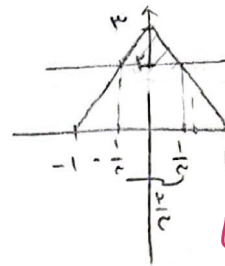
$$\frac{a}{c} = 2$$

جواب:  $\frac{4}{3}$  و  $1$

استان طوی تا شری در اندازه مساحت ندارد از - صرف نظری کنیم



$$-f\left(\frac{n}{2}\right) + 2 \rightarrow f(n)$$

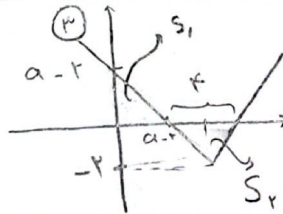
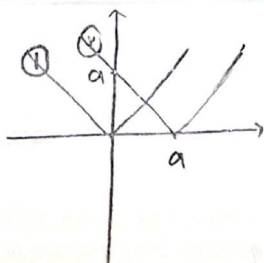


$$S_2 = \frac{1}{2} \times 1 \times 1 = \frac{1}{2}$$

$$① |n|$$

$$② |n-a|$$

$$③ |n-a| - 2$$



$$S_{\text{کل}} = S_2 + S_1$$

$$f(a) = f + S_1 \rightarrow \frac{1}{2}$$

$$S_1 = \frac{(a-2)^2}{2} \geq \frac{1}{2}$$

$$a-2 \geq 1 \rightarrow a \geq 3$$

$$f\left(\frac{1}{2}\right) \Rightarrow \left|\frac{1}{2} - 3\right| - 2 \Rightarrow \frac{5}{2} - 2 \Rightarrow \frac{1}{2} \quad \text{جواب}$$