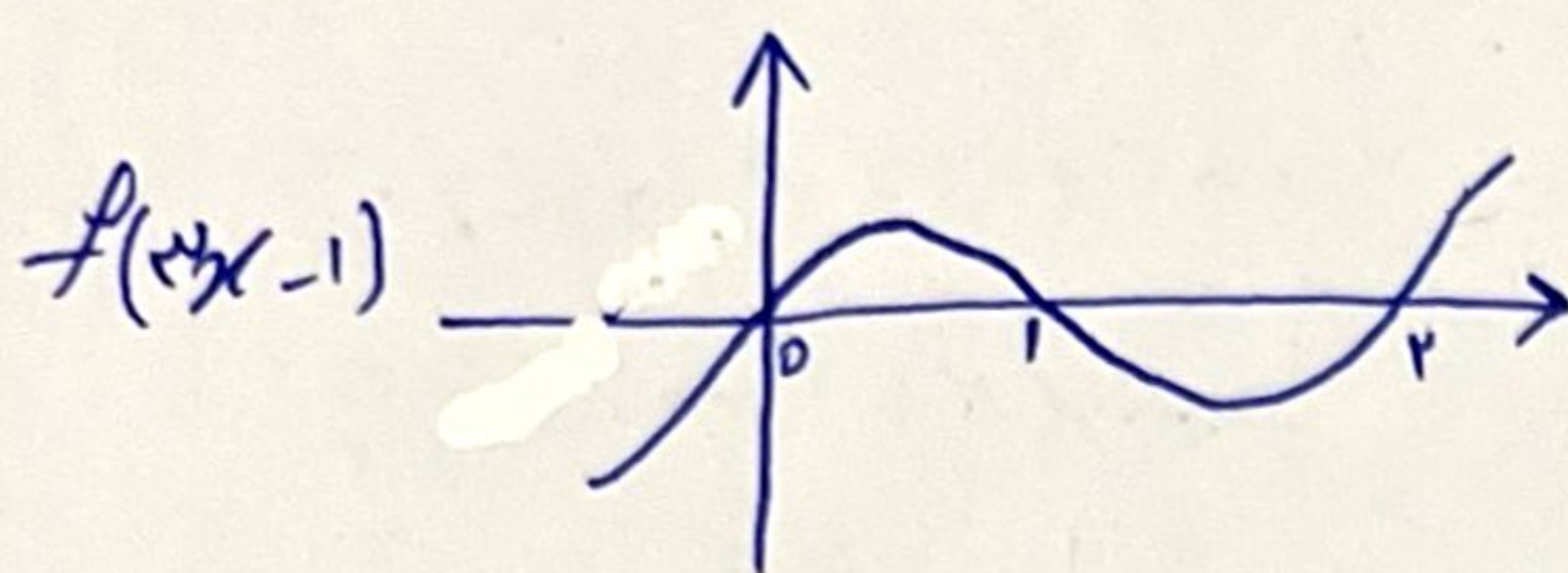
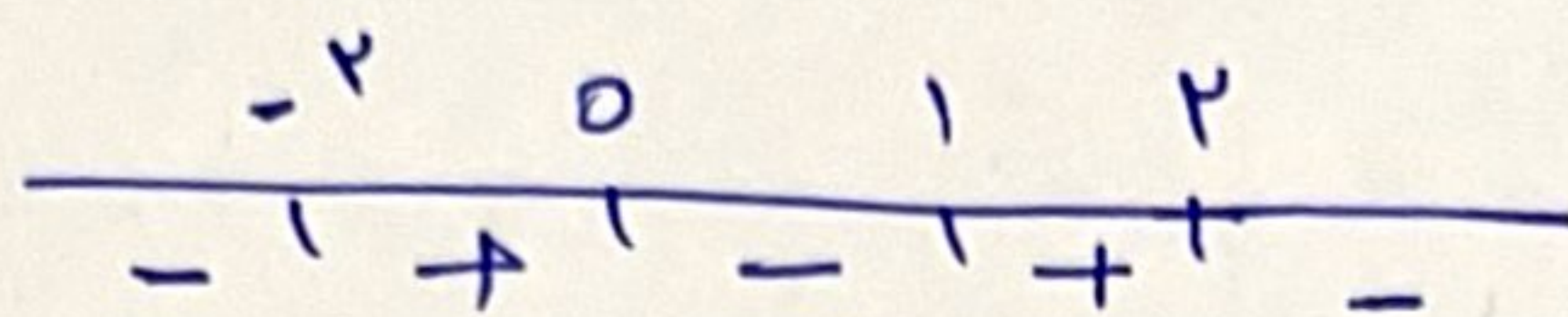


$$y = \sqrt{-(x+2)f(3x-1)}$$

(-2) (2) (1) (0)



$$[-2, 0] \cup [1, 2]$$

(4)

$$\begin{aligned} f(x) \rightarrow x=-1 &\rightarrow 0 \\ x=2 &\rightarrow 0 \\ x=5 &\rightarrow 0 \end{aligned}$$

$$\begin{aligned} 3x-1=-1 &\rightarrow x=0 \\ 3x-1=2 &\rightarrow x=1 \\ 3x-1=5 &\rightarrow x=2 \end{aligned}$$

f(3x-1) را به تابع f(x) تبدیل کن

$$\left. \begin{aligned} f(x) &= |2x-3|+1 \\ g(x) &= |2(x+k)-3|-2 \end{aligned} \right\} \begin{aligned} \text{برای همپوشانی معادله} &\rightarrow f(x) \rightarrow x=0 \rightarrow 4 \\ x=0 \text{ در } g &\rightarrow g(x) \rightarrow x=0 \rightarrow 4 \end{aligned}$$

$$|2k-3|-2=4 \rightarrow |2k-3|=6 \rightarrow \begin{aligned} 2k-3=6 &\rightarrow k=4.5 \\ 2k-3=-6 &\rightarrow k=-1.5 \end{aligned}$$

(4)

$$f(x) = \frac{2x-1}{x+1} \xrightarrow{\text{قرین نسبت به معادله}} -\frac{2x-1}{x+1} \xrightarrow{\text{طول نقاط برابر}} -\frac{2(3x)-1}{3x+1} = -\frac{4x-1}{3x+1}$$

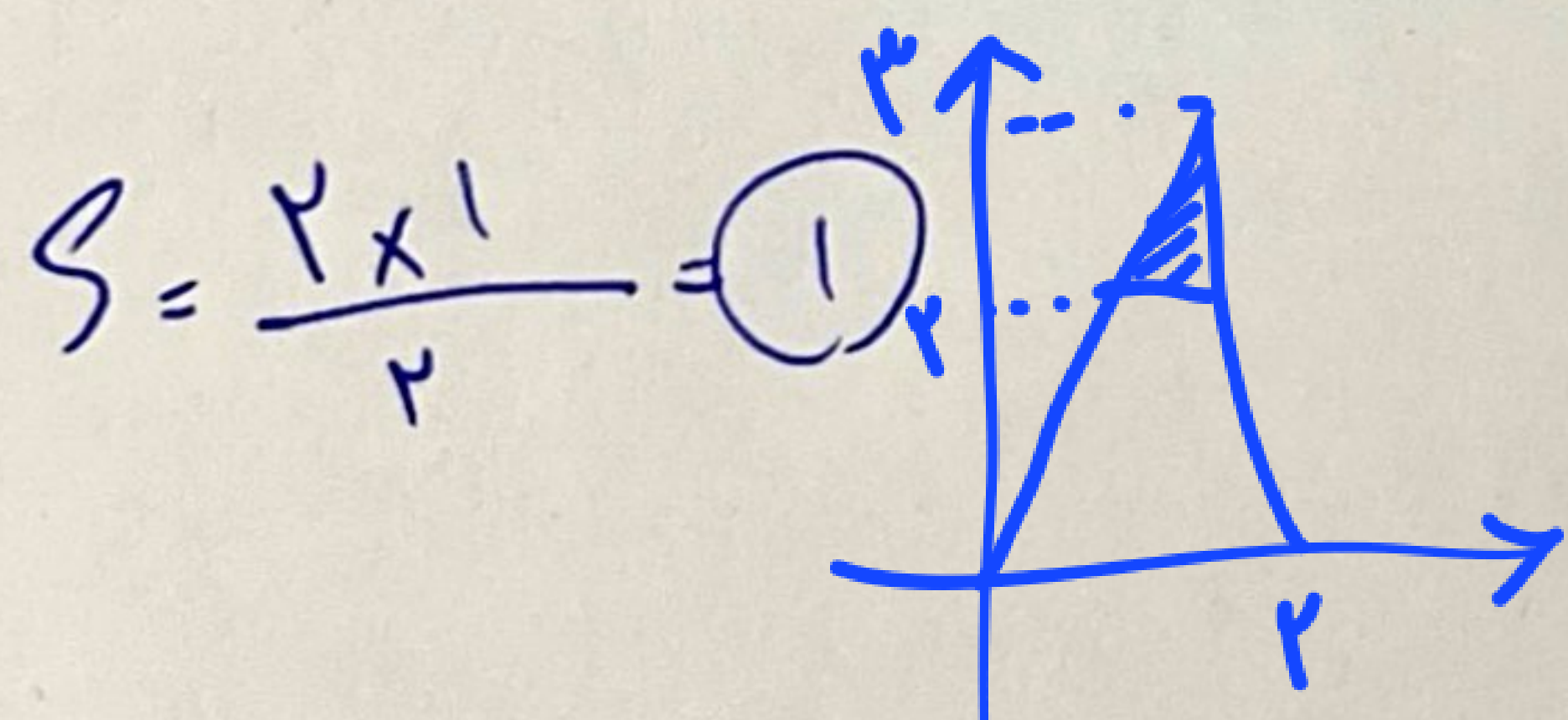
$$-\frac{4x-1}{3x+1} + k = \frac{2x-1}{x+1} \rightarrow \frac{2x-1}{x+1} + \frac{4x-1}{3x+1} = k$$

$$\frac{-2x+3}{x+3} + k = \frac{2x-1}{x+1} \rightarrow (k-4)x^2 + 5x(k-1) + 3k+4$$

k=4 ← مساوی شود (18)

$$y_1 = -f\left(\frac{x}{3}\right) + 2 \rightarrow D = [-3, 3] \\ R = [-1, 2]$$

$$\begin{aligned} D_{f(x)} &= [-1, 1] \\ R_{f(x)} &= [0, 2] \\ R_{f(x)} &= [0, 2] = R_{f(x-1)} \end{aligned}$$



$$-1 \leq x-1 \leq 1 \rightarrow D_{f(x-1)} = [0, 2]$$

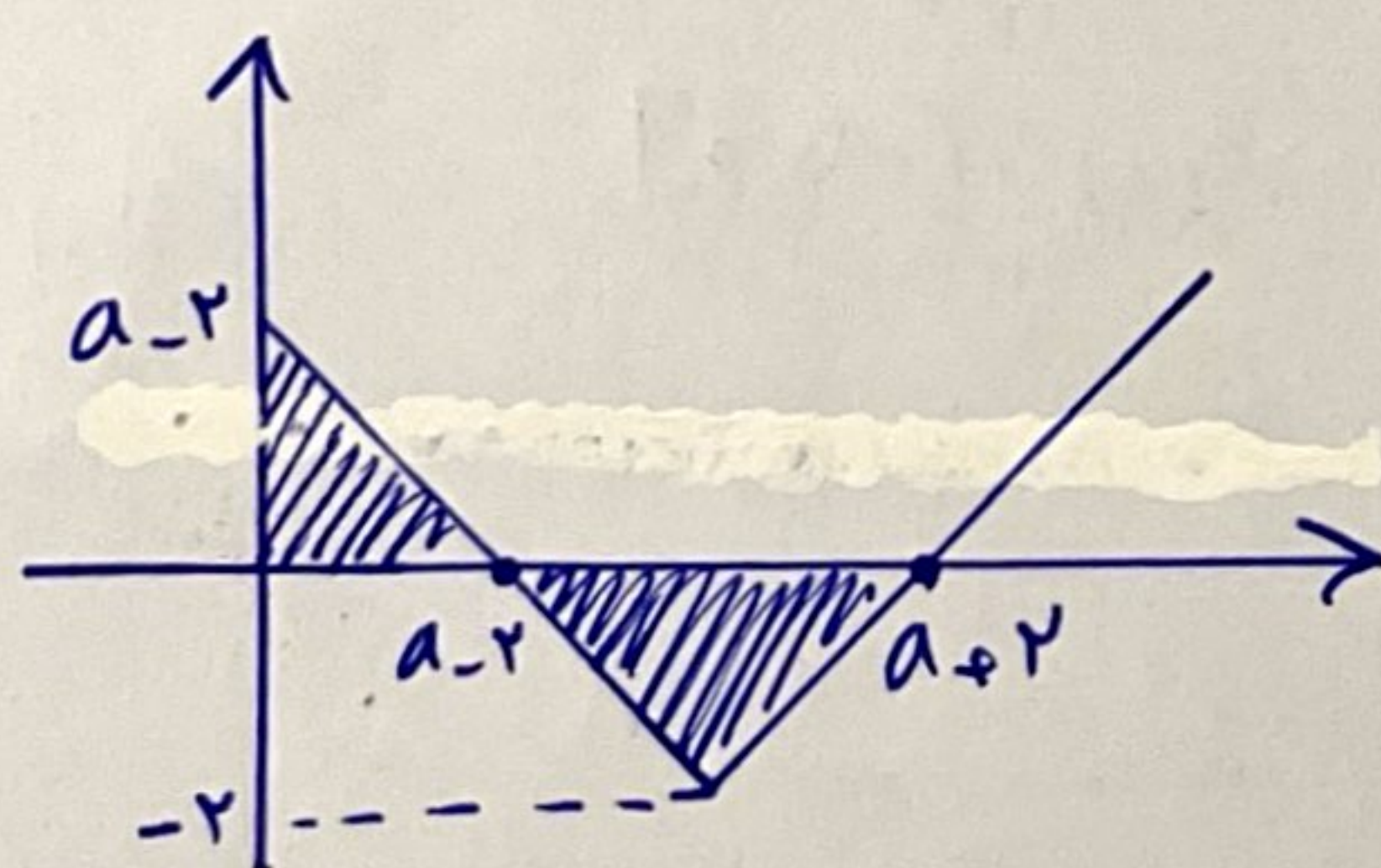
$$S = \frac{1}{3}$$

(18)

$$f(x) = |x-a|-2$$

$$\frac{(a-2)^2}{2} + \frac{(a-2-(a-2))x^2}{2} = \frac{a}{2}$$

$$\frac{(a-2)^2}{2} = \frac{1}{2} \rightarrow (a-2)^2 = 1 \rightarrow a=3 \text{ or } a=1$$



$$f\left(\frac{1}{2}\right) = \left|\frac{1}{2}-3\right|-2 = \left(\frac{5}{2}\right)$$

(4)

اگر a=1
a-2 > 0