

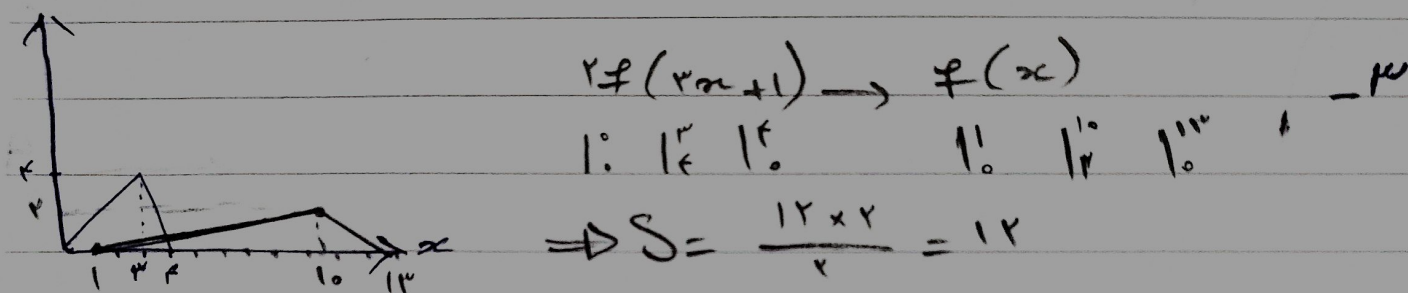
Date: 1404, 4, 14

حل مسأله

Subject: 4

الف) $f(x) \rightarrow f(3x-2)$ $[-4, 2] \rightarrow [-\frac{14}{3}, \frac{4}{3}]$ ب) $[-1, -2] \rightarrow [-14, -8]$

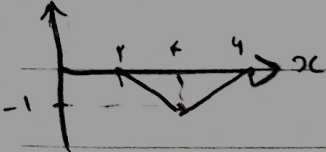
$f(x) = x + \sqrt{x-2} \xrightarrow{\text{تبدیل}} (x-2) + \sqrt{x-2}$
 $x = y \rightarrow y = x + 2 \rightarrow x = y - 2 \rightarrow y - 2 + \sqrt{y-2} = y \rightarrow y - 2 = 2 \rightarrow y = 4$



$f(x) \xrightarrow{\text{تبدیل}} f(\frac{x-a}{r}) + a$

$(2, -3) \xrightarrow{\text{تبدیل}} (x+a, -y+a) \xrightarrow{y=2x-1} -y+a = 1+2a-1 \Rightarrow a = -9$

$y = -f(x-2) \rightarrow f(x) \rightarrow \frac{1}{r} f(-x+2)$

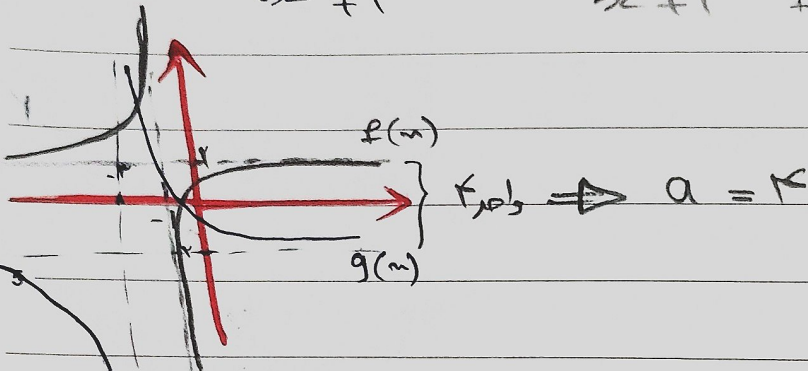


$f(x) \rightarrow f(3x-1)$

$D = [-r, 0] \cup [1, r]$

$f(x) = |2x-3| + |x-k| - 2 = g(x)$
 $f = g \Rightarrow k = |2k-3| - 2 \Rightarrow \begin{cases} 2k-3 = 4 \rightarrow k = 7/2 \\ 2k-3 = -4 \rightarrow k = -1/2 \end{cases}$

$$f(x) = \frac{rx-1}{x+1} \xrightarrow{x \rightarrow \infty} \frac{1-rx}{x+1} \xrightarrow{+a} \frac{r-rx}{x+r} + a = g(x) \quad \Delta$$



$$y = f\left(\frac{x}{r}\right) + r \rightarrow f(x) \rightarrow f(x-1)$$

$$\begin{matrix} 1-r & 1-1 & 1-r & 1-0 & 1-r & 1-0 & 1-r & 1-0 & 1-r & 1-0 \end{matrix}$$

$$S = \frac{ab}{r} = \frac{1}{r} \Rightarrow ab = \frac{r}{r} \text{ و } S = \frac{r \times 1}{2} = \frac{1}{2}$$

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$$S = \frac{(a-r)^r}{r} \times r = \frac{1}{2} \Rightarrow (a-r)^r = \frac{1}{2} \rightarrow a = \sqrt{r} + r$$

$$\frac{1}{a} = \frac{r}{\sqrt{r}+r} \times \frac{\sqrt{r}-r}{\sqrt{r}-r} = \frac{\sqrt{r}-r}{-1} = r - \sqrt{r}$$

$$\rightarrow f(r - \sqrt{r}) = |r - \sqrt{r} - \sqrt{r} - r| - r = r\sqrt{r} - r = r(\sqrt{r} - 1)$$