

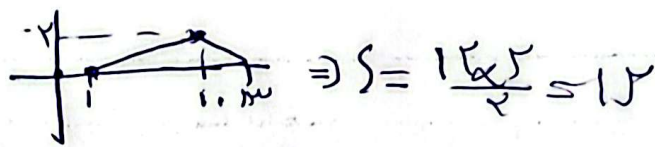
الف) $f(3x-2) \geq x-4 \Rightarrow f(-14)$ ب) $-4 \leq 3x-2 \leq 1$
 $\hookrightarrow x = -2 \Rightarrow f(-12)$ $-2 \leq 3x \leq 3$
 $-\frac{2}{3} \leq x \leq \frac{1}{3}$
 $D = [-\frac{2}{3}, \frac{1}{3}]$

$3x+1 \xrightarrow{x \mapsto x+1} 3x+4 \xrightarrow{x \mapsto x-1} 3x+3$

A: $\xrightarrow{3+1} A'$

B: $\xrightarrow{3+1} B'$

C: $\xrightarrow{3+1} C'$



$f(x) = x + \sqrt{x-2} \xrightarrow{x \mapsto x+2} x-2 + \sqrt{x-4} = (\sqrt{x-4} + \frac{1}{2})^2 + \frac{1}{4}$
 $\xrightarrow{\text{مفروضه}} y - \frac{1}{4} = (\sqrt{x-4} + \frac{1}{2})^2 \Rightarrow x - \frac{1}{4} = (\sqrt{x-4} + \frac{1}{2})^2$
 $y = (\sqrt{x-\frac{1}{4}} - \frac{1}{2})^2 + \frac{1}{4} \Rightarrow \sqrt{x-\frac{1}{4}} = \sqrt{x-4} + \frac{1}{2} \Rightarrow \boxed{x=1}$

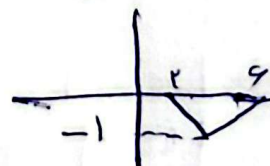
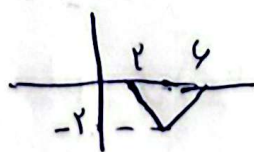
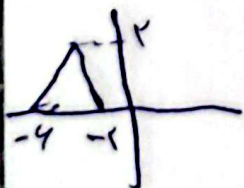
$\frac{x-a}{r} = \frac{1}{k} \Rightarrow y = \frac{1}{k} - 1 \Rightarrow a + \frac{1}{k} = -4 \Rightarrow a + (-6) = -4$
 $a = 2$

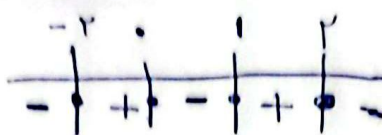
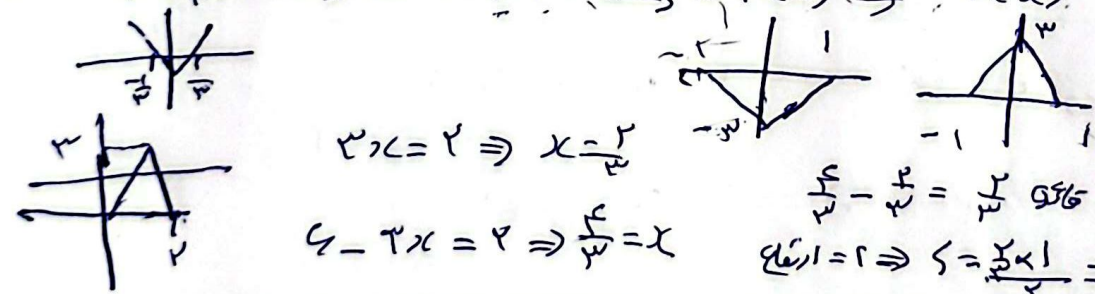
$f(x-\frac{a}{r}) = 3 \Rightarrow (p) \Rightarrow g(x) = \frac{1}{r} f(\frac{x-a}{r}) + \frac{1}{r}$

$y = f(x+4)$

$y = m f(x-2)$

$\frac{1}{p} f(x-2)$



$2x-1=0 \Rightarrow x=\frac{1}{2}$ $2x-1=-1 \Rightarrow x=0$ $2x-1=2 \Rightarrow x=\frac{3}{2}$	 $D_f = [-1, 0] \cup [1, 2]$
$g(x) = f(x) \Rightarrow \{x=0\}$ $\Rightarrow -1 + k = \dots$	$ 2x-3+k - 2 = x-3 + 1$ $ k-3 - 2 = 1 \Rightarrow \boxed{k=9}$ $\rightarrow k = -9$
$g(x) = \frac{-1-\frac{3}{2}x}{-\frac{x}{2}+1} = \frac{2x+3}{x-2} \Rightarrow h(x) = \frac{2x+3+a(x-2)}{x-2}$ $(x+1)(2x+3+a(x-2)) = (x-2)(2x-1) \Rightarrow 2x^2 + (3+a)x + 3-2a = 2x^2 - 4x + 2$ $+3+ax-2a = 2x^2 - 4x + 2 \Rightarrow$ $ax^2 + 0x - 2ax + 3 - 2a = -4x + 2 \Rightarrow a=0 \Rightarrow x=0$	
$y_1 = -f(\frac{x}{2}) + 2 \rightarrow -f(x) + 2 \rightarrow -f(x) \rightarrow f(x)$  $2x=2 \Rightarrow x=\frac{2}{2}$ $2-2x=2 \Rightarrow \frac{2}{2}=x$ $\frac{2}{2}-\frac{2}{2} = \frac{2}{2} \text{ or } 1$ $ x =1 \Rightarrow x = \pm 1$	
$S_1 = \left \frac{(a-2)(a-2)}{2} \right = \frac{a^2-4a+4}{2} = \frac{(a-2)^2}{2}$ $S_2 = \left \frac{(a-2)(a+2)}{2} \right = \frac{a^2-4}{2}$ $a^2-4a+4 = 1 \Rightarrow a=3$ $f(x) = x-3 - 2 \rightarrow$ $f(\frac{1}{2}) = \left \frac{1}{2} - 3 \right - 2 = \boxed{\frac{7}{2}}$	