

الف) $-4 < x \leq 2 \rightarrow -12 < 3x \leq 6 \rightarrow -12 < 3x - 2 \leq 4 \rightarrow Df(3x-2) = [-14, 4]$ $D_f = [-\frac{4}{3}, \frac{4}{3}]$

ب) $-4 \leq 3x - 2 \leq -2 \rightarrow -2 \leq 3x \leq 0 \rightarrow -\frac{2}{3} \leq x \leq 0 \rightarrow Df(x) = [-\frac{2}{3}, 0]$ $D_f = [-\frac{4}{3}, -1]$

$f(x) = x + \sqrt{x-2}$ $y = (x-2) + \sqrt{(x-2)-2} \Rightarrow y = x-2 + \sqrt{x-4}$ $x = y$

$x = y - 2 + \sqrt{y-4}$ $y = y - 2 + \sqrt{y-4} \Rightarrow \sqrt{y-4} = 2 \Rightarrow y-4 = 4 \Rightarrow y = 8$

$y = 2f(3x+1) \xrightarrow{\div 2} y = f(3x+1) \xrightarrow{\div 3} y = f(x)$

$S = \frac{\text{مساحت مثلث}}{2} = \frac{1 \times (1 - (-\frac{1}{3}))}{2} = \frac{2}{3}$ $S = 12$

$f(2) = -3 = A$

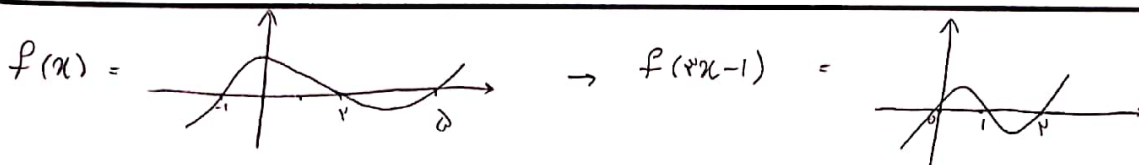
$y = a + 2f(\frac{x-a}{2}) \rightarrow f(\frac{x-a}{2}) = -3 \rightarrow \frac{x-a}{2} = 2 \rightarrow x-a = 4 \rightarrow x = a+4, y = a + 2(-3)$

$\Rightarrow A' \Big|_{a-4} \xrightarrow{y=2x-1} A' \Big|_{a-4} \rightarrow a-4 = 2(a+4)-1 \rightarrow a-4 = 2a+8-1 \rightarrow a = -7$

$y = -f(x-2) \rightarrow y = -f(x) \rightarrow y = f(x)$

$y = f(x+4)$

$y = f(-x+4)$



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

	-2	0	1	2
$f(2x-1)$	-	-	+	+
$-(x+2)$	+	+	-	-
y	-	+	-	+

$$\rightarrow D_f = [-2, 0] \cup [1, 2]$$

$f(x) = |2x-3|+1$ $\xrightarrow{\text{نقطه برقرار}}$ $g(x) = |2(x+k)-3|+1-3 = |2(x+k)-3|-2$

$\rightarrow f = |2(0+k)-3|-2 \rightarrow f = |2k-3|-2$
 $\rightarrow f = |2k-3|-2 \rightarrow y = |2k-3|-2$
 $\begin{cases} 2k-3=4 \rightarrow 2k=7 \rightarrow k=3.5 \\ 2k-3=-4 \rightarrow 2k=-1 \rightarrow k=-0.5 \end{cases}$
 غنای (طبق صورت سوال) $k > 0$

$$y = \frac{-ka+k}{a+k}$$

اگر معادله خط باشد یک جواب دارد
 و صریح x^2 صریح است

$$\frac{-ka+k}{a+k} + k = \frac{ka-1}{a+1}$$

$$(k-1)a^2 + \varepsilon a (k-1) + 1k+9$$

$$k=4$$

