

الف)

$$Df(2) = [-4, 2]$$

مدرست لها باهم برابرات

$$Df(3x-2) = ? \rightarrow [-\frac{4}{3}, \frac{2}{3}]$$

$$-4 \leq x \leq 2$$

$$-4 \leq 3x-2 \leq 2$$

$$-2 \leq 3x \leq 4$$

$$-\frac{2}{3} \leq x \leq \frac{4}{3}$$

ب)

$$Df(3x-2) = [-4, 2]$$

مدرست لها باهم برابرات

$$Df(2) = 2 \rightarrow [-14, 4]$$

$$-4 \leq x \leq 2$$

$$-12 \leq 3x \leq 2$$

$$-14 \leq 3x-2 \leq 4$$

$$-14 \leq x \leq 4$$

$$-14 \leq x \leq 4$$

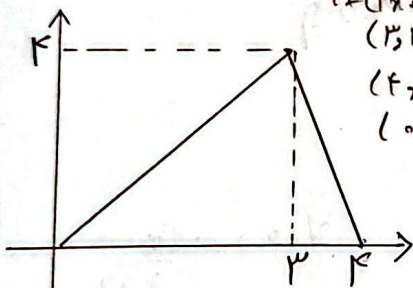
$$f(x) = x + \sqrt{x-2} \xrightarrow{\text{اداءات}} y = x - 2 + \sqrt{(x-2)-2} \rightarrow y = x - 2 + \sqrt{x-4}$$

من دانيه كذا مع صغورتي معلوش روسي نبيار فاهمه اهل رسوم متقاطع مستندس محل تقاطع معلوش اين تابع بالحيار ناصيه اول حوال محل تقاطع تابع مقابل است بالاي ناصيه اول رسوم $x-2+\sqrt{x-4}=x \rightarrow \sqrt{x-4}=2 \rightarrow x-4=4 \rightarrow x=8$

$$(x=8) \rightarrow \text{نقطه تقاطع} \xrightarrow{x=y} (8, 8)$$

$$g(x) = 2f(3x+1)$$

مساحت سطح محدود $f(x)$ محور x ها



$$2f(3x+1) = \begin{pmatrix} 3 & 4 \\ 4 & 0 \\ 0 & 0 \end{pmatrix} \rightarrow \begin{pmatrix} 1 & 2 \\ 1 & 3 \\ 1 & 7 \end{pmatrix}$$



$$\frac{12 \times 13}{2} = 78$$

$$y = f(x) \leftarrow A(2, -3)$$

$$\frac{x-a}{r} = 2 \rightarrow x-a=2 \rightarrow x=2+a \quad y = a + 2f\left(\frac{x-a}{r}\right) \leftarrow A'$$

$$y = a + 2(-3) \rightarrow y = a - 6$$

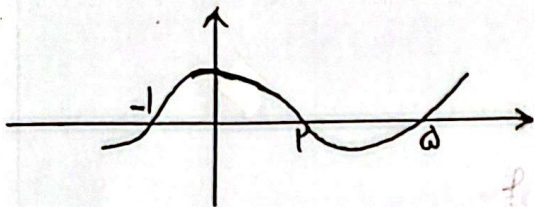
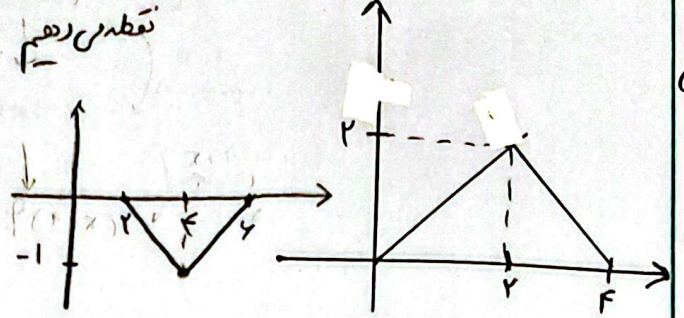
$$2x-1 = a-6 \rightarrow 2x = a+5 \rightarrow x = \frac{a+5}{2}$$

$$* \frac{a}{r} + 1 = a + 2 \rightarrow -3 = \frac{a}{r} \rightarrow a = -6$$

مرتباً فلهذا - بالفتح - من تكليف السجده 4

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

$$y = -f(x - r)$$



$$D = [-r_2, 0] \cup [1, r] \quad \begin{matrix} \text{critical} \rightarrow \\ \sqrt{-(x+r)f(rx-1)} \\ -(x+r)f(rx-1) \geq 0 \\ (x+r)f(rx-1) \leq 0 \end{matrix}$$

$f(x, y)$ $f(x)$ $f(x-1)$

$(2, 0) \longrightarrow (2, 0) \longrightarrow (2, 0)$
 $(1, 0) \longrightarrow (1, 0) \longrightarrow (1, 0)$
 $(-1, 0) \longrightarrow (0, 0) \longrightarrow (0, 0)$

		-2	-5	1	2
$x+2$	$-$	0	$+$	$+$	$+$
$P(x-1)$	$-$	1	$-$	0	$-$
کے برابر	$+$	0	$-$	$+$	$-$
		2	2	2	2

$$f(x) = |1x - 1| + 1$$

محل برخورد خودروهای f و g در محور y حاصلین $x=0$
 $f=g$

$$|Y(0) - v| + 1 = |Y(0+k) - v| - 1$$

$$r+1 = |rk - r| - r$$

$$y = |2k - 3| \rightarrow$$

$$\begin{aligned} 2|k - 3| &= -4 \rightarrow |k| = -1 \rightarrow k = -\frac{1}{1} \times \\ 2|k - 3| &= 4 \rightarrow 2k = 4 \rightarrow k = \frac{4}{2} \checkmark \end{aligned}$$

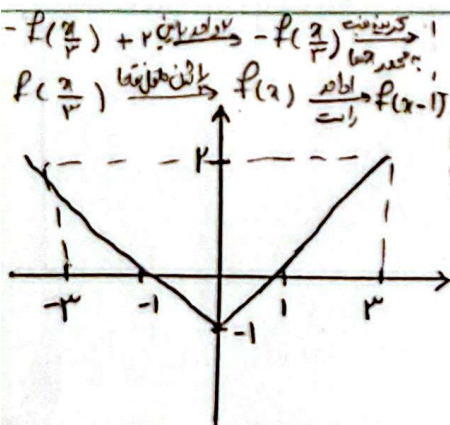
$$k - 2 = 2$$
$$(k = 4)$$

$$f'(x) = \left(\frac{f\left(\frac{x}{x+1}\right) - 1}{\frac{x}{x+1} + 1} \right) + k \quad \leftarrow \quad f(x) = \frac{x-1}{x+1}$$

$$f'(2) = \frac{\frac{r-r_2}{r}}{\frac{x+r}{r}} + k = \frac{r-r_2}{x+r} + k = \frac{r-r_2+kx+r_2}{x+r} = \frac{(k-r)x+r_2}{x+r}$$

$$f'(x) = f(x)$$

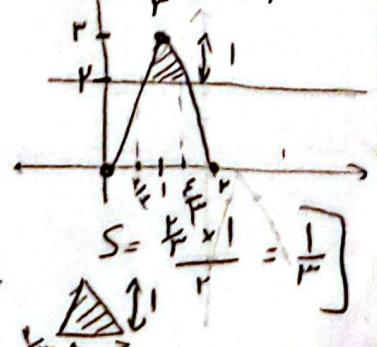
$$\frac{(1-r)2 + r_k + r}{2 + r} = \frac{y_x - 1}{2 + 1} \rightarrow ((1-r)2^r + r^r k + r^r x + (1-r)2 + r_k + r = (2^r) + y_x - 2 - r$$



$$y = r$$

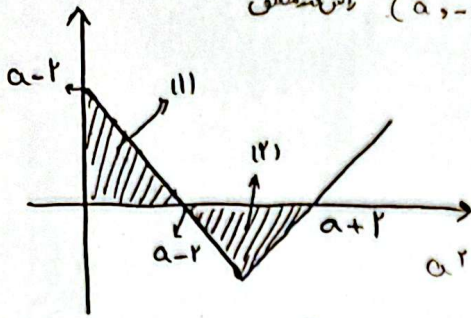
$$y_r = f(2-1) \quad ; \quad y_1 = -f(\frac{1}{2}) + 1$$

$\frac{1}{2} \rightarrow \frac{1}{3} \rightarrow \frac{1}{4} \rightarrow \frac{1}{5} \rightarrow \frac{1}{6}$
 $\frac{1}{3} \rightarrow \frac{1}{4} \rightarrow \frac{1}{5} \rightarrow \frac{1}{6} \rightarrow \frac{1}{7}$
 $\frac{1}{4} \rightarrow \frac{1}{5} \rightarrow \frac{1}{6} \rightarrow \frac{1}{7} \rightarrow \frac{1}{8}$
 $\frac{1}{5} \rightarrow \frac{1}{6} \rightarrow \frac{1}{7} \rightarrow \frac{1}{8} \rightarrow \frac{1}{9}$
 $\frac{1}{6} \rightarrow \frac{1}{7} \rightarrow \frac{1}{8} \rightarrow \frac{1}{9} \rightarrow \frac{1}{10}$
 $\frac{1}{7} \rightarrow \frac{1}{8} \rightarrow \frac{1}{9} \rightarrow \frac{1}{10} \rightarrow \frac{1}{11}$
 $\frac{1}{8} \rightarrow \frac{1}{9} \rightarrow \frac{1}{10} \rightarrow \frac{1}{11} \rightarrow \frac{1}{12}$



موتنا کلبی - یاغی شریک کلای شماره ۲

(a, -r) اس قسطنق



$$S_1 = \frac{(a-r)(a-r)}{2} = \frac{(a-r)^2}{2} \quad f(x) = |x - a| - r$$

$$\frac{1}{2} S_2 = \frac{1}{2} \cdot \frac{r \cdot r}{2} = \frac{r^2}{4} \rightarrow S_1 + S_2 = \frac{(a-r)^2}{2} + \frac{r^2}{4} = 10$$

$$\frac{(a-r)^2}{2} = \frac{1}{2} \rightarrow a^2 - 2ar + r^2 = 1$$

$$a^2 - 2ar + r^2 = 0 \rightarrow (a-1)(a-3) = 0$$

a = 1 x → دل زور
a = 3 بان منفرد

$$f(x) = |x - 3| - r$$

$$f\left(\frac{1}{a}\right) = f\left(\frac{1}{r}\right) = \left|\frac{1}{r} - 3\right| - r = \frac{r}{3}$$