

$$y = -\frac{1}{5}x^2 + \frac{2}{5}x + 1 \quad -\frac{b}{2a} = -\frac{\frac{2}{5}}{-\frac{1}{5}} = \frac{2}{1} \rightarrow y = \frac{21}{25}$$

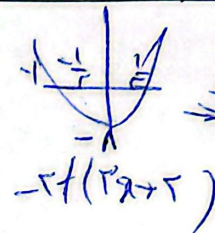
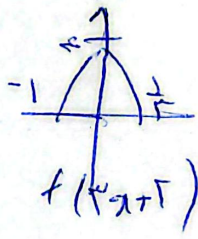
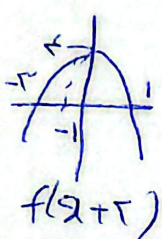
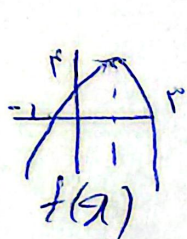
$$\Delta x = 4 - \frac{2}{5} = \frac{18}{5}$$

$$\Delta y = 3 - \frac{21}{25} = \frac{34}{25}$$

$$\Rightarrow y = -\frac{1}{5}\left(4 - \frac{18}{5}\right)^2 + \frac{2}{5}\left(4 - \frac{18}{5}\right) + 1 + \frac{34}{25} = 0$$

$$\times 25 \rightarrow -25x^2 + 10x + 25 = 0 \Rightarrow 25x^2 - 10x - 25 = 0 \Rightarrow x = \frac{10 \pm \sqrt{100 - 4(-25)(-25)}}{50}$$

$$x - \frac{18}{5} = t \Rightarrow t = \frac{10 \pm 10}{50} \Rightarrow \begin{cases} t_1 = \frac{4}{5} \rightarrow x = 4 \\ t_2 = -\frac{16}{5} \rightarrow x = -1 \end{cases}$$



$$A(\alpha, \beta) \rightarrow A\left(-\frac{1}{2}, -\frac{1}{2}\right) \rightarrow \alpha\beta = -\frac{1}{2} \left(-\frac{1}{2}\right) = \frac{1}{4}$$

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

$$\Rightarrow y = \sqrt{2x+2} - 3 \Rightarrow y = \sqrt{2x+2} + 3 = \frac{1}{2} \Rightarrow y = \sqrt{2x+2} = \frac{1}{2}$$

$$\Rightarrow 2x+2 = \frac{1}{4} \Rightarrow x = -\frac{7}{8}$$

$$x-1 \in (a, 4] \Rightarrow x \in (a+1, 5]$$

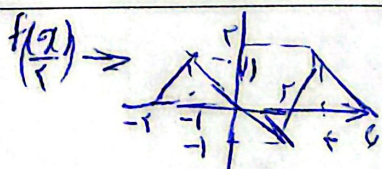
$$x+1 \in [-1, b) \Rightarrow x \in [-2, b-1) \Rightarrow D = (a+1, 5] \cap [-2, b-1)$$

$$= [-2, 0)$$

$$a+1 = -2 \Rightarrow a = -3$$

$$\Rightarrow a-b = -3-4 = -7$$

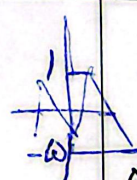
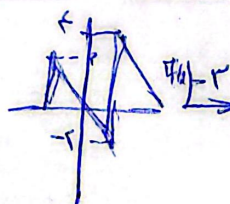
$$b-1 = 0 \Rightarrow b = 1$$



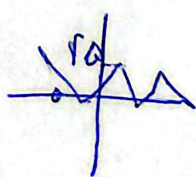
$$f(2)$$



$$2f(2)$$



$$\sqrt{12f(x)-2}$$



$$R_f = [0, 2]$$

$$D_f = [-1, 4]$$

$$y = \frac{2}{a} [ax]$$

$$0 < x < \frac{1}{2} \rightarrow [ax] = 0 \rightarrow y = 0$$

$$\frac{1}{a} < x < \frac{1}{a} \rightarrow [ax] = 1 \rightarrow y = \frac{2}{a}$$

$$\text{المجال هو } b=1$$

$$b-a=0$$

$$\frac{2}{a} [ax] = \frac{1}{\frac{1}{a}} \rightarrow x = \frac{1}{2} \rightarrow y = \frac{1}{a} \rightarrow \frac{1}{a} = \frac{1}{\frac{1}{a}} \rightarrow a=1$$

$$y = \log x \rightarrow y = \log(x+r) \rightarrow y = -\log(x+r) \rightarrow y = \log(x+r) + r$$

$$y = -\log(r-x) + r = g(x)$$

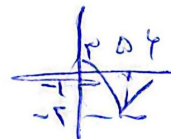
$$\Rightarrow g(-1) = -\log 1 + r = -1 \Rightarrow g(-1) + g(-2) = -1 - r = -r$$

$$g(-2) = -\log 2 + r = -r$$

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

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

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



$$g(x) = \left| \frac{x-1}{x-2} \right| + 1 \rightarrow \left| \frac{x-1}{x-2} \right| + 1 < 0$$

$$\frac{1}{x-2} - \frac{x}{x-2} + 1$$

$$\text{if } \left| \frac{x-1}{x-2} \right| > 0 \rightarrow \frac{x-1}{x-2} + 1 < 0 \rightarrow \frac{x-1+(x-2)}{x-2} < 0 \rightarrow \frac{2x-3}{x-2} < 0$$

$$\text{if } \frac{x-1}{x-2} < 0 \rightarrow \frac{x-1}{x-2} < 0 \rightarrow x \in (-\infty, -1) \cup \left(\frac{1}{2}, 2\right)$$

$$x \in (-\infty, -1) \cup \left(\frac{1}{2}, 2\right)$$

$$y = ax^r \Rightarrow r = ar^r \Rightarrow a = \frac{r}{\lambda} \Rightarrow y = \frac{r}{\lambda} x^r$$

$$g(x) = \sqrt{r \ln f(x) - f(x)} = \sqrt{r \ln \left(\frac{r}{\lambda} x^r \right) - \left(\frac{r}{\lambda} x^r \right)} = \sqrt{r \ln \left(\frac{r}{\lambda} \right) x^r - \left(\frac{r}{\lambda} \right) x^r}$$

$$= \sqrt{\left(\frac{r}{\lambda} \right)^r (r \lambda x^r - x^r)} = \sqrt{\left(\frac{r}{\lambda} \right)^r (x^r (r \lambda - 1))}$$

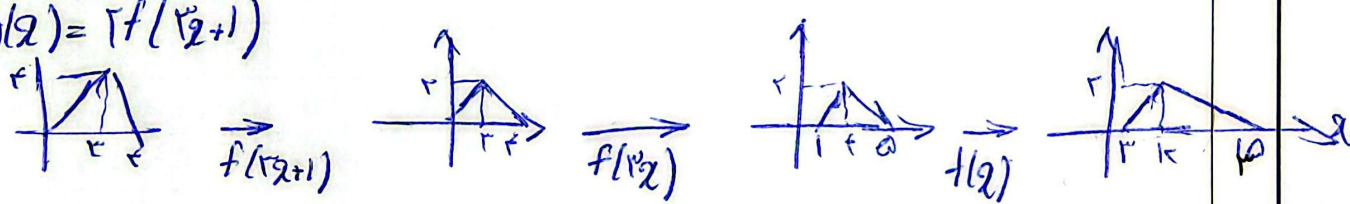
$$\Rightarrow x \in [0, \sqrt{r \lambda}] \rightarrow x = 0, 1, 2 \rightarrow \text{المجال هو } [0, \sqrt{r \lambda}]$$

الف) $D_f = [-2, 2] \rightarrow -2 \leq x \leq 2 \rightarrow -2 \leq x \leq 2 \rightarrow -2 \leq x \leq 2$
 $\rightarrow \left[-\frac{2}{3} \leq x \leq \frac{2}{3} \right]$
 $\rightarrow -2 \leq x \leq 2 \rightarrow -2 \leq x \leq 2 \rightarrow -2 \leq x \leq 2$

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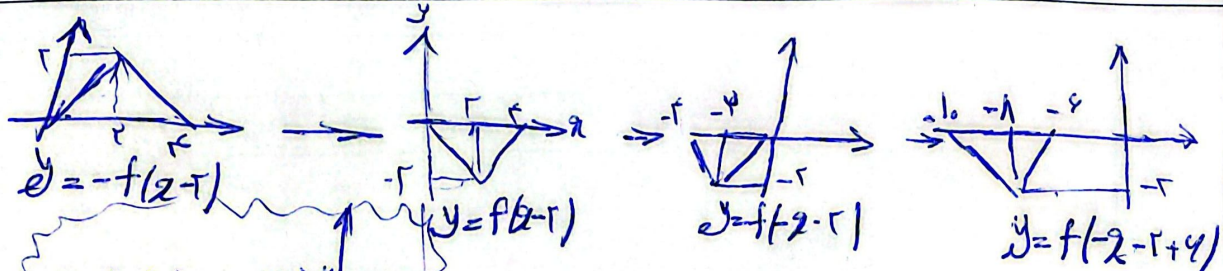
$y = 2 + \sqrt{2-x} \xrightarrow{\text{در دوام دات}} y = 2 - 1 + \sqrt{2-x-1} = 2 - 1 + \sqrt{2-x}$
 $\xrightarrow{\text{در دوام دات}} 2 - 1 + \sqrt{2-x} = 2 \rightarrow \sqrt{2-x} = 1$
 $\rightarrow 2 - x = 1 \rightarrow x = 1 \rightarrow A(1, 1) \rightarrow \text{نقطه است}$

۲

$g(x) = f\left(\frac{x}{2} + 1\right)$

 $\Rightarrow S = \frac{(10-2) \times 2}{2} = 12$

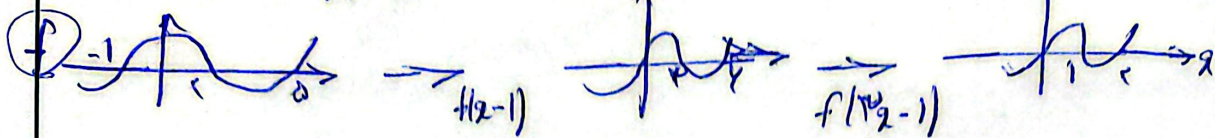
$A(1, -2) \rightarrow y = f(x) = x$
 $y = 2x - 1 \rightarrow A'(x, y) \rightarrow A'(x, 2x - 1)$
 $f\left(\frac{x-a}{2}\right) = \frac{y-a}{2}$
 $\frac{x-a}{2} = 2 \Rightarrow x = 4 + a$
 $y = a + 2f\left(\frac{x-a}{2}\right) = a + 2(-2) = a - 4$
 $\rightarrow a - 4 = 1 \Rightarrow a = 5$

۴

$y = -f(x-2)$

 $\Rightarrow y = \frac{1}{2} f\left(\frac{x-2}{2}\right) \Rightarrow y = \frac{1}{2} f\left(\frac{x-2}{2}\right)$

۵

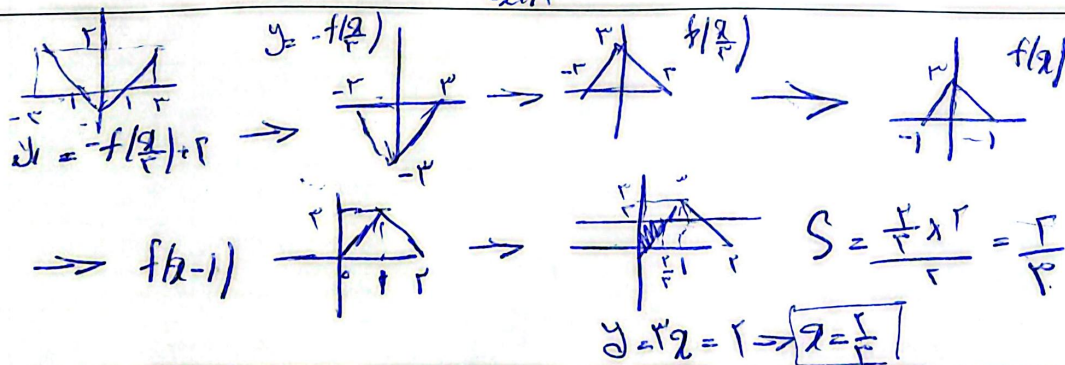
$$(-2-r)(f(x-1)) \geq 0$$



$$\frac{-r}{-} \frac{0}{+} \frac{1}{-} \frac{r}{+} \frac{}{-} \Rightarrow D_f = [-r, 0] \cup [1, r]$$

$$\begin{aligned} \sqrt{f(x)} &= |x-2|+1 \rightarrow f(x) = |x-2|^2+1 \\ \rightarrow g(x) &= |x-2k-3|-r \Rightarrow f(x)=g(x) \xrightarrow{x=0} r = |2k-3|-r \\ \Rightarrow y &= |2k-3| \rightarrow \begin{cases} 2k-3=y \Rightarrow k=\frac{y+3}{2} \checkmark \\ 2k-3=-y \Rightarrow k=\frac{-y+3}{2} \times (k>0) \end{cases} \Rightarrow \boxed{k=\frac{y+3}{2}} \end{aligned}$$

$$\begin{aligned} f(x) &= \frac{x-1}{x+1} \quad \begin{matrix} R_1 = 1R - 1R \\ R_2 = 1R - 1R \end{matrix} \quad \begin{matrix} \rightarrow \\ \text{بعض} \end{matrix} \quad \frac{1-x}{x+1} \quad \begin{matrix} \rightarrow \\ \text{بعض} \end{matrix} \quad \frac{1-x(x)}{x+1} \\ &\Rightarrow \frac{-x^2+1}{x+1} + a \quad \begin{matrix} \rightarrow \\ \text{بعض} \end{matrix} \quad \boxed{a=r} \quad \begin{matrix} \rightarrow \\ \text{بعض} \end{matrix} \end{aligned}$$



$$\begin{aligned} S &= S_1 + S_2 = \frac{r}{r} = \frac{a^r \cdot f(a+r)}{r} + \frac{1}{r} = \frac{r}{r} \rightarrow a^r - fa + r = 0 \\ \text{بعض} &= a+r - (a-r) = r \quad \rightarrow \begin{cases} a=1 \times \\ a=r \checkmark \end{cases} \\ &\rightarrow f(x) = |x-2|-r \\ &\rightarrow f\left(\frac{1}{r}\right) = \left|\frac{1}{r}-2\right|-r = \frac{r}{r} \end{aligned}$$