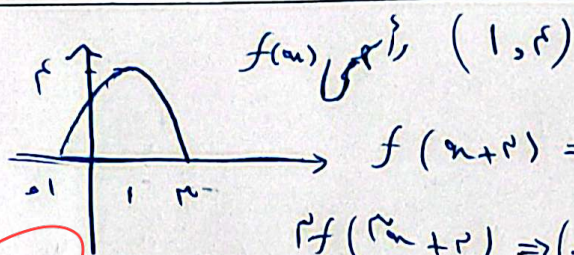


$$y = -\frac{1}{3}(x-4)^2 + 3 \xrightarrow{y=0} -\frac{1}{3}(x-4)^2 = -3 \rightarrow (x-4)^2 = 9$$

$$a = -\frac{1}{3}$$

$$(c) \begin{cases} x-4=3 \rightarrow x=7 \\ x-4=-3 \rightarrow x=1 \end{cases}$$



$$\alpha\beta = \frac{v}{3}$$

$$f(x+2) \Rightarrow (-1, 4) / f(x+2) \Rightarrow (-\frac{1}{2}, 4)$$

$$2f(x+2) \Rightarrow (-\frac{1}{2}, 1) / -2f(x+2) \Rightarrow (-\frac{1}{2}, -1)$$

$$1-2f(x+2) \Rightarrow (-\frac{1}{2}, -5) \quad a = -\frac{1}{2}, B = -5 \quad \checkmark$$

$$x - \sqrt{2x} \Rightarrow x - \sqrt{2(x+1)} \Rightarrow -x + \sqrt{2x+2} \Rightarrow x + \sqrt{2x+2}$$

$$x + \sqrt{2x+2} = \frac{v}{2} \Rightarrow \sqrt{2x+2} = \frac{v}{2} \Rightarrow 2x+2 = \frac{v^2}{4} \Rightarrow x = \frac{1}{2}$$

$$\Rightarrow x = \frac{1}{2} \quad \checkmark \quad (d)$$

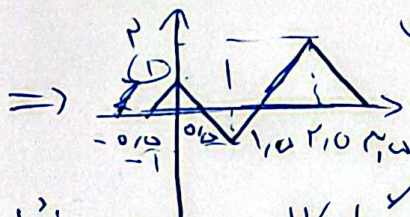
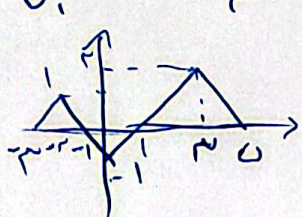
$$D_{f(x)} = (a, c] \Rightarrow D_{f(x-1)} = (a+1, c] \quad \left. \vphantom{D_{f(x)} = (a, c]} \right\} \cap \Rightarrow (-2, c)$$

$$D_{g(x)} = [-1, b) \Rightarrow D_{g(x+1)} = [-2, b-1)$$

$$\begin{aligned} \rightarrow a+1 &= -2 \rightarrow a = -3 \\ \rightarrow b-1 &= a \rightarrow b = -2 \end{aligned} \quad \checkmark$$

$$a-b = -3 - (-1) = -2 \quad \checkmark$$

$$y_1 = f\left(\frac{x}{2} + 1\right) \quad f(x) \Rightarrow D_{f(x)} = \left[-\frac{1}{2}, \frac{v}{2}\right] \quad (e)$$



$$D_{|f(x) - 1|} = \left[-\frac{1}{2}, \frac{v}{2}\right] \quad \checkmark$$

$$D_{|f(x) - 1|} = [0, 1]$$

رایج ترین برداری (دسته) نامیده می شود

$$R_f = [0, \sqrt{5}]$$

$$f(-\frac{1}{a}) = \frac{1}{r} \rightarrow -\frac{1}{ar}[-1] = \frac{1}{r} \rightarrow a^r = r \rightarrow \begin{cases} a=r & \times \\ a=-r & \checkmark \end{cases}$$

$$\left. \begin{matrix} b=1 \\ a=-r \end{matrix} \right\} b-a=r$$

②

$$f(u) = \log_r u \xrightarrow{\text{تحويل}} u \cdot \log_r u \xrightarrow{\text{تحويل}} -\log_r u \xrightarrow{\text{تحويل}} -\log_r u + r$$

$$g(u) = \log_r u + r \quad g(-1) + g(-r) = (-1) + (-r) = -r$$

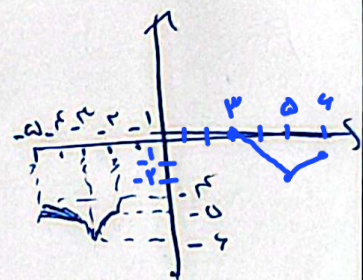
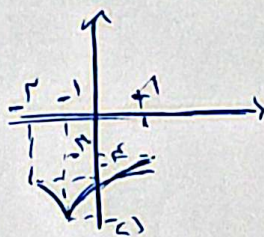
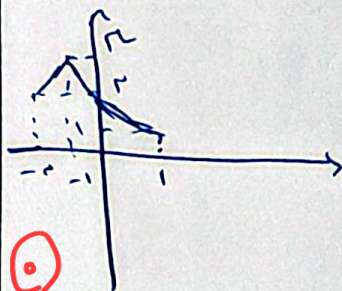
$$g(-1) = -\log_r 1 + r = -1 \quad g(-r) = -\log_r r + r = -r$$

$$r - f(r-u)$$

$$f(r-u)$$

$$f(-u)$$

$$f(u-1) - 1$$



③

$$f(u) = \left| \frac{u+1}{r(u+1)} \right| \Rightarrow \left| \frac{(u-r)+1}{r(u-r)+1} \right| + \left| \frac{r(u-\sqrt{r})(u+\sqrt{r})}{r(u-r)+1} \right|$$

$$\Rightarrow g(u) = \left| \frac{u-r}{u-r} \right| + 1 = 2$$

$$x \in (-\infty, -\sqrt{r})$$

④

$$f(x) = \frac{rv}{\lambda} (x-r)^r + rv$$

$$x \in [0, \frac{1}{r}] \rightarrow \text{جميع } x$$

$$\forall f(x) - f'(x) \geq 0$$

$$f(x)(r\lambda - f(x)) \geq 0 \rightarrow f(x) = 0 \rightarrow x = 0$$

$$\rightarrow f(x) = r\lambda \rightarrow x = \frac{1}{r}$$

⑤