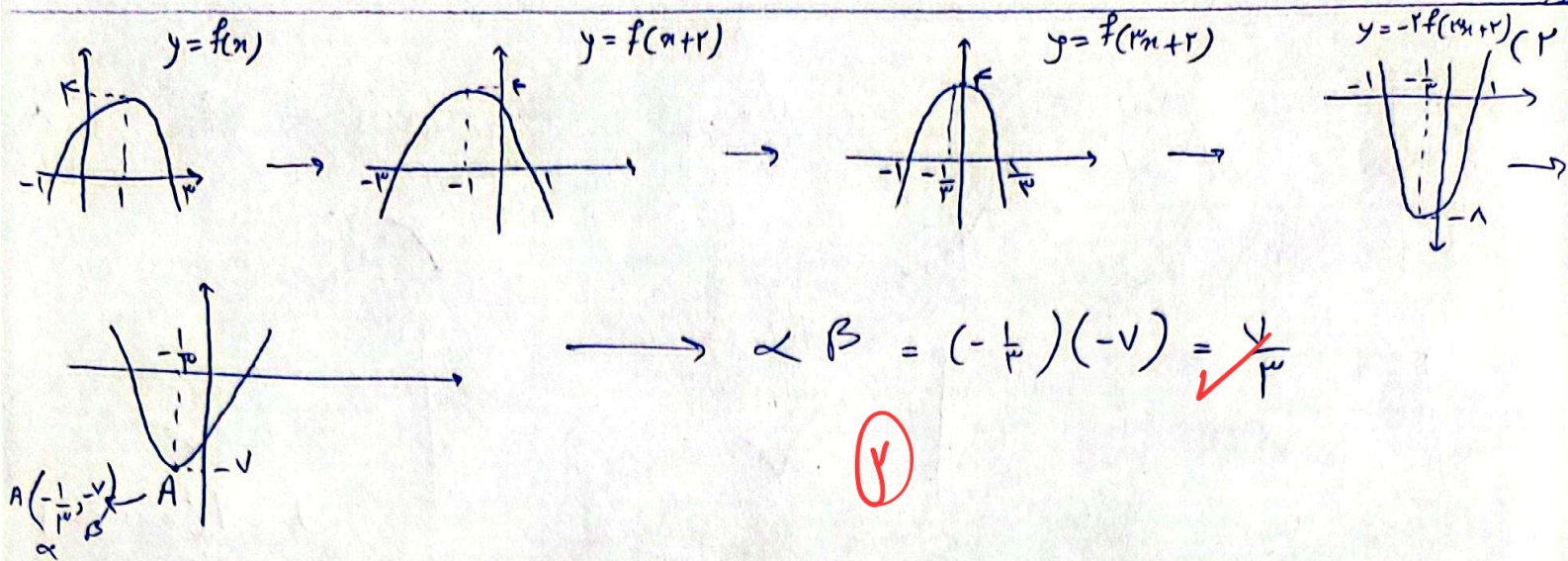


$$y = -\frac{1}{p}x^2 + \frac{r}{2}x + 1 = -\frac{1}{p}(x - x_{ext})^2 + y_{ext} \xrightarrow{(f, r)} y = -\frac{1}{p}(x - \varepsilon)^2 + r \rightarrow (1)$$

$$y = 0 \rightarrow -\frac{1}{p}(x - \varepsilon)^2 + r = 0 \rightarrow (x - \varepsilon)^2 = q \rightarrow x - \varepsilon = r \rightarrow x = V \quad \checkmark \quad (2)$$

$$\rightarrow x - \varepsilon = -r \rightarrow x = 1$$



$$y = r - \sqrt{rx} \xrightarrow{\text{جایگزینی}} y = r - \sqrt{r(x+1)} \xrightarrow{\text{نسبت میگیریم}} y = \sqrt{r(x+1)} - r \xrightarrow{\text{جایگزینی}} (r)$$

$$y = \sqrt{r(x+1)} + r \rightarrow \sqrt{rx+r} = \frac{r}{r} \rightarrow \sqrt{rx+r} = \frac{r}{r} \rightarrow rx+r = \frac{r^2}{r} \rightarrow rx = \frac{r^2}{r} - r \rightarrow x = \frac{1}{r} \quad \checkmark \quad (3)$$

$$y = f(x-1) + g(x+1) \rightarrow D = (-r, \delta) \quad (4)$$

$$Df = (a, \varepsilon] \rightarrow a < x-1 \leq \varepsilon \rightarrow a+1 < x \leq \varepsilon+1 \rightarrow Df(x+1) = (a+1, \delta]$$

$$Dg = [-1, b) \rightarrow -1 \leq x+1 < b \rightarrow -2 \leq x < b-1 \rightarrow Dg(x+1) = [-r, b-1)$$

$$a-b = -9$$

$a = -3 \quad b = 2$   $\checkmark$

$$y_r = \sqrt{|rf(x) - r|} \rightarrow |rf(x) - r| \geq 0 \xrightarrow{\text{جایگزینی}} D_r = Df(x) \quad R_f = [0, \sqrt{5}] \quad (5)$$

$$y_1 = f(\frac{x}{r} + 1) \rightarrow y = f(x) \quad D_1 = [-r, \delta] \rightarrow D_f = ?$$

$$\rightarrow -r \leq x \leq \delta$$

$$-\frac{r}{r} \leq \frac{x}{r} \leq \frac{\delta}{r} \rightarrow -\frac{1}{r} \leq \frac{x}{r} + 1 \leq \frac{\delta}{r} \rightarrow D_f = [-\frac{1}{r}, \frac{\delta}{r}] \rightarrow D_r = [-\frac{1}{r}, \frac{\delta}{r}] \quad \checkmark$$

$y = \frac{x}{a} [ax] \rightarrow 0 \leq ax < 1 \rightarrow 0 \leq x < \frac{1}{a} \quad [ax] = 0$

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

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

$A(\frac{1}{a}, \frac{1}{\varepsilon}) \rightarrow \frac{1}{a} = \frac{1}{\varepsilon} \rightarrow a^r = \varepsilon \rightarrow a = \pm r \rightarrow a = -r \quad \checkmark$

$b = r \times \frac{1}{p} = 1 \rightarrow b - a = 1 + r = r \quad \checkmark$

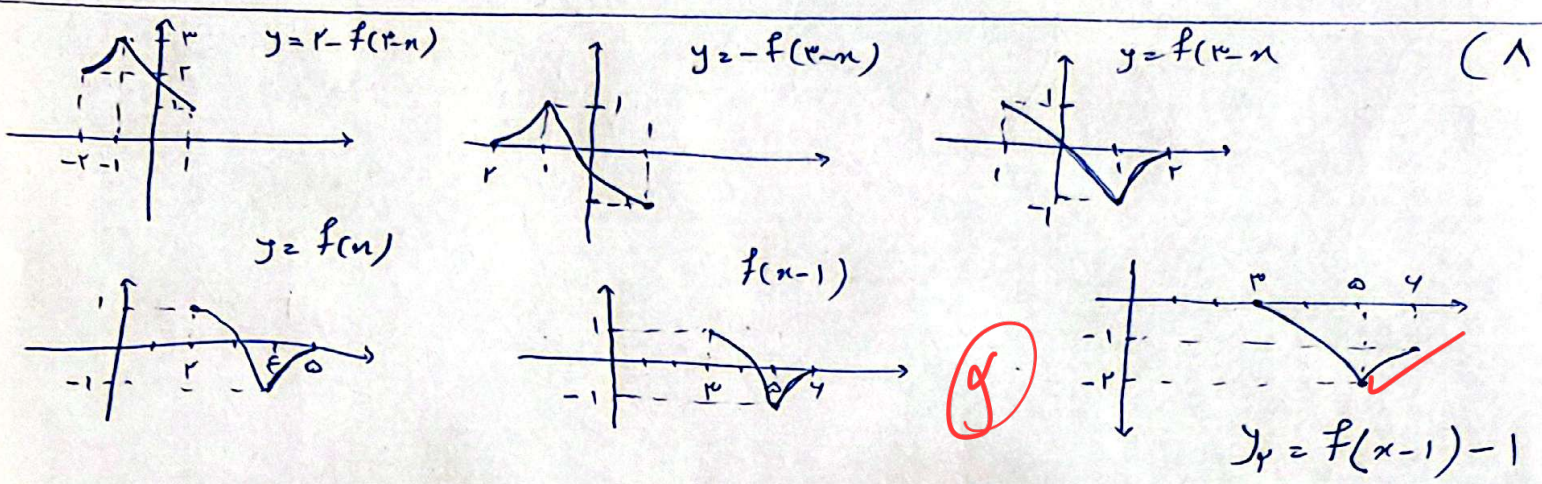
$y = \frac{x}{-r} [-rx]$

$$f(x) = \log_r x \xrightarrow{\text{تحويل}} y = \log_r \frac{x+r}{r} \xrightarrow{\text{تحويل}} y = -\log_r \frac{x+r}{r} \xrightarrow{\text{تحويل}} y = -\log_r \frac{x+r}{r} + r$$

$$g(x) = -\log_r \frac{-x+r}{r} + r \rightarrow g(-1) = -1 \leftarrow y = -\log_r \frac{-x+r}{r} + r \leftarrow y = -\log_r \frac{-x+r}{r} + r$$

$$\rightarrow g(-9) = -9$$

$$g(-1) + g(-9) = -1 - 9 = -10 \quad \checkmark$$



$$f(x) = \left| \frac{x+1}{x+1} \right| \xrightarrow{\text{تحويل}} f(x) = \left| \frac{(x-1)+1}{r(x-1)+1} \right| \xrightarrow{\text{تحويل}} g(x) = \left| \frac{x-1}{rx-1} \right| + 1$$

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

$$\rightarrow \frac{x-1}{rx-1} < -x-1 \rightarrow \frac{rx^2 - x - 1}{rx-1} < 0 \rightarrow \frac{rx^2 - x - 1}{rx-1} < 0$$

$$x \in (-\infty, -\sqrt{r}) \quad \cap \quad (10)$$

$$y = x^r \rightarrow f(x) = (x-r)^r + r \quad \checkmark$$

$$g(x) = \sqrt{-f'(x) + r f(x)} \rightarrow (10)$$

$$g(x) = \sqrt{-f(x)(f(x) - r)}$$

$$\frac{-1}{-} \mid \frac{r}{+} \mid - \rightarrow D_g = [-1, r]$$

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

$$\frac{-1}{-} \mid \frac{1}{+} \mid - \rightarrow D_f = [0, \frac{1}{r}] \rightarrow \text{منحني}$$