

$$D_{F(x)} = [-2, 4] \rightsquigarrow D_{\text{جبر}} = ? [-1, 4]$$

$$F\left(\frac{3x+2}{5}\right) \rightsquigarrow -2 \leq \frac{3x+2}{5} \leq 4 \rightsquigarrow -10 \leq 3x+2 \leq 20 \rightsquigarrow -12 \leq 3x \leq 18$$

$$\boxed{-4 \leq x \leq 6}$$

$$F(x-2) \rightsquigarrow D = [-2, 2]$$

$$D_{F(x)} = ? [-1, 5] \quad \begin{cases} F(-1) = -1 \\ F(5) = 5 \end{cases}$$

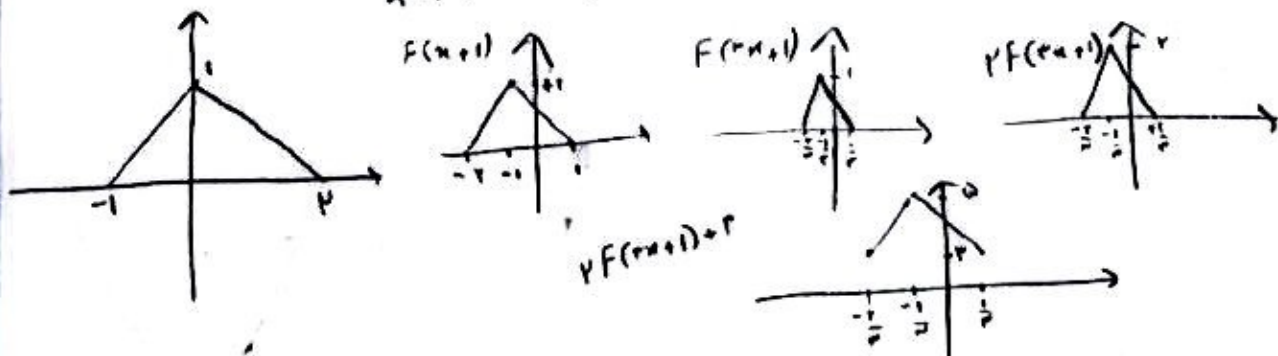
$$F\left(\frac{x+1}{2}\right) \rightsquigarrow D = [-1, 3]$$

$$F(x) \left\{ \begin{array}{l} F(-1) + 1 = \frac{-1}{2} = -1 \\ F(3) + 1 = 1 \end{array} \right\} \rightsquigarrow [-1, 1]$$

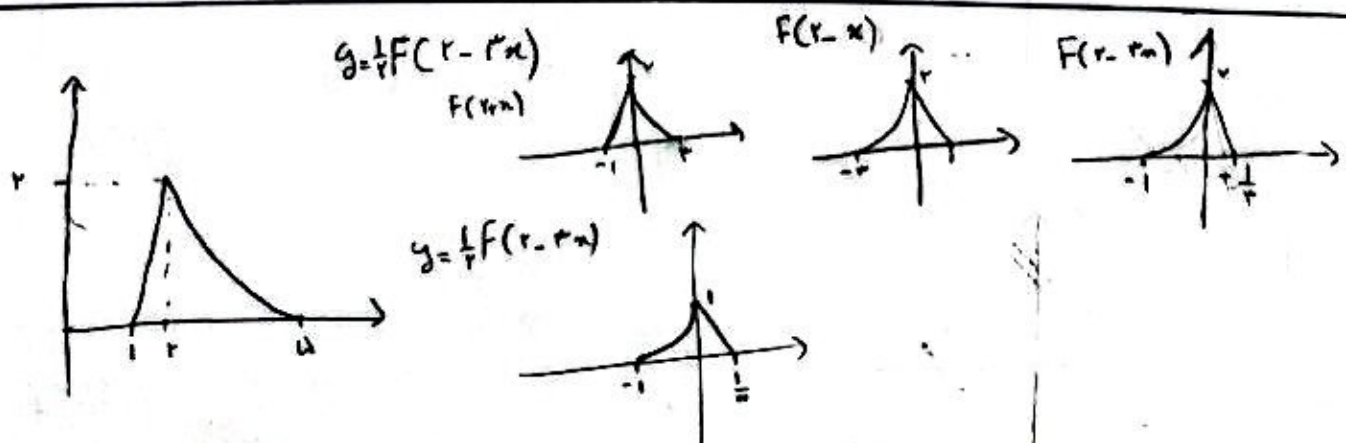
$$-1 \leq \frac{x+1}{2} < 1 \rightsquigarrow -2 \leq x < 2$$

$$\boxed{D = \left[-\frac{3}{2}, \frac{3}{2}\right]}$$

$$y = 2F(x+1) + 3$$



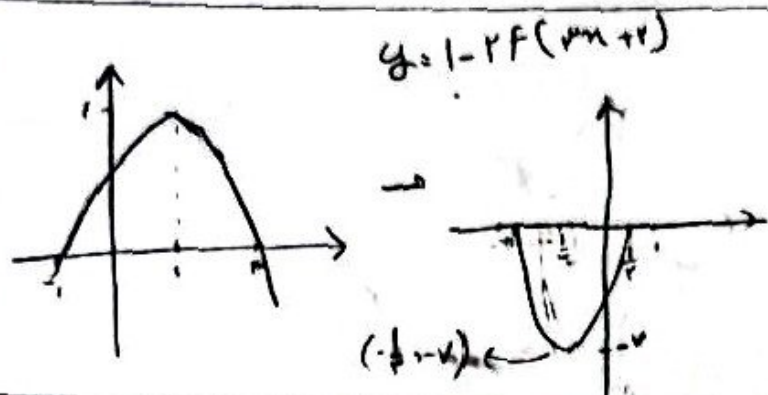
$$y = \frac{1}{4}F(x-2)$$



$$y = -\frac{1}{p}x' + \frac{r}{q}x + 1 \quad (E, r)$$

$$y = a(n-h)^r + 1 \rightarrow y = -\frac{1}{p}(n-r)^r + r \xrightarrow{y=0} -\frac{1}{p}(n-r)^r + r = 0$$

$$\begin{cases} -\frac{1}{p}(n-r)^r = -r \\ n-r = r \end{cases} \rightarrow \begin{cases} n = 2r \\ n = 1 \end{cases}$$

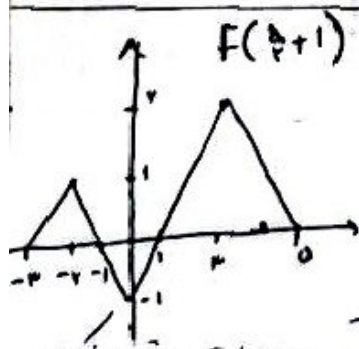


$$a, b = \frac{r}{p}$$

$$P_f = (a, \varepsilon], P_g = [\varepsilon, b) \quad g = f(x-1) + g(x+1) \rightarrow P = (-r, d)$$

$$\begin{cases} -1 \leq x+1 \leq b \rightarrow -r \leq x \leq b-1 \\ a < x-1 \leq \varepsilon \rightarrow a+1 < x \leq \varepsilon+1 \end{cases} \rightarrow P_y = (a+1, \varepsilon] \cap [-r, b-1) = (-r, d)$$

$$\begin{cases} a+1 = -r \sim a = -r-1 \\ b-1 = 0 \sim b = 1 \end{cases} \rightarrow a-b = -r-1-1 = -r-2$$



$$y = \sqrt{|rF(x) - r|} \quad \sim \quad |rF(x) - r| \geq 0$$

$$P_f = [-\frac{1}{r}, \frac{1}{r}] \quad R_f = [-1, r]$$

$$\begin{aligned} -\frac{r}{r} + 1 &= -\frac{1}{r} \\ \frac{r}{r} + 1 &= \frac{1}{r} \end{aligned}$$

$$[-1, r] \xrightarrow{rF(x)} [-r, \varepsilon] \xrightarrow{r} [-a, 1]$$

$$\begin{aligned} \text{نوعه اول } \cup \text{ نوعه دوم} \quad P &= [-\frac{1}{r}, \frac{1}{r}] \\ \text{نوعه اول } Q &= [0, \sqrt{a}] \end{aligned}$$

$$0 \leq |rF(x) - r| \leq a \quad \sim \quad [0, \sqrt{a}]$$

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

$$x + \left| \frac{x-1}{rx-r} \right| + 1 < 0 \rightarrow \left| \frac{x-1}{rx-r} \right| < -x-1 \quad \sim \quad \begin{cases} -(x+1) > 0 \\ x < -1 \end{cases} \quad (1)$$

$$\frac{x-1}{rx-r} < -x-1 \rightarrow \frac{x-1 + rx^2 - x - r}{rx-r} = \frac{rx^2 - x - r}{rx-r} < 0 \quad \sim \quad \frac{-r}{-r} < \frac{-1}{-1} + \frac{x}{x}$$

$$\frac{x-1}{rx-r} > -x-1 \rightarrow \frac{x-1 - rx^2 + x + r}{rx-r} > 0 \quad \sim \quad \frac{-rx^2 + 2x - 1 + r}{rx-r} > 0 \quad \sim \quad P_{\text{نوعه اول}} = (-\infty, \sqrt{r})$$