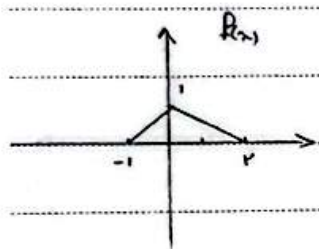


$D_{f(x)} = [-2, 4]$ $f\left(\frac{x+2}{2}\right) \Rightarrow D: -2 \leq \frac{x+2}{2} \leq 4 \Rightarrow -10 \leq x+2 \leq 8$
 $\Rightarrow -12 \leq x \leq 6 \Rightarrow -4 \leq x \leq 4 \Rightarrow D = [-4, 4]$

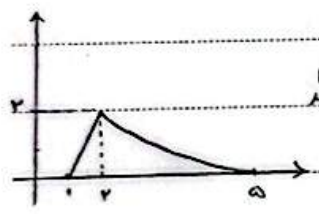
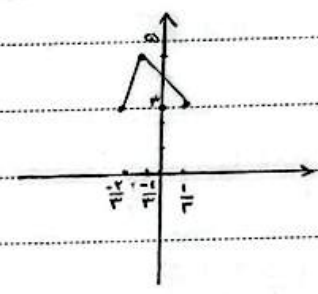
$D_{f(x-2)} = [-2, 3] \rightarrow -2 \leq x \leq 3 \Rightarrow -1 \leq x-2 \leq 5 \Rightarrow D_f = [-1, 5]$

$D_{f\left(\frac{x+1}{2}\right)} = [-1, 3] \rightarrow -1 \leq x \leq 3 \Rightarrow -1 \leq \frac{x+1}{2} \leq 3 \Rightarrow D_f = [-1, 5]$

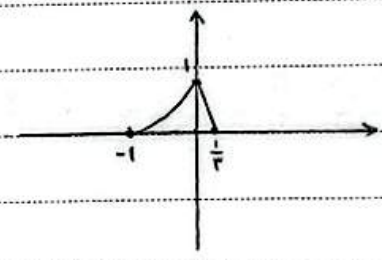
$f(x-2) \rightarrow D: -1 \leq x-2 \leq 3 \Rightarrow -1 \leq -2 \leq 3 \Rightarrow \frac{-3}{2} \leq x \leq \frac{5}{2} \Rightarrow D = \left[-\frac{3}{2}, \frac{5}{2}\right]$



نقطة: $f(-1)=0 \rightarrow x+1=-1 \Rightarrow x=-2$
 $y=f(-2)+3=3$
 $f(0)=1 \rightarrow x+1=0 \Rightarrow x=-1$
 $y=f(-1)+3=3$
 $f(2)=0 \rightarrow x+1=2 \Rightarrow x=1$
 $y=f(1)+3=3$



نقطة: $f(0)=0 \rightarrow x-1=0 \Rightarrow x=1$
 $y=f(1)=1$
 $f(1)=1 \rightarrow x-1=1 \Rightarrow x=2$
 $y=f(2)=0$
 $f(2)=0 \rightarrow x-1=2 \Rightarrow x=3$
 $y=f(3)=0$



$y=a(x-h)^2+k \rightarrow y=\frac{1}{4}(x-1)^2+3 \Rightarrow (x-1)^2=9 \Rightarrow x-1=3 \Rightarrow x=4$
 $x-1=-3 \Rightarrow x=-2$

$x+2=1 \Rightarrow x=-1 \Rightarrow x=\frac{-1}{2} \Rightarrow \alpha\beta = \left(\frac{-1}{2}\right)(-1) = \frac{1}{2}$

$y=1-2f\left(\frac{x+1}{2}\right) \xrightarrow{x=\frac{-1}{2}} 1-2f(0) = 1-2(1) = -1 = \beta$

$$Df = (a, f] \Rightarrow Df(x+1) : a < x-1 \leq f \Rightarrow a+1 < x \leq f+1 \Rightarrow D = (a+1, f+1]$$

$$Dg = [-1, b) \Rightarrow Dg(x+1) : -1 \leq x+1 < b \Rightarrow -2 \leq x < b-1 \Rightarrow D = [-2, b-1)$$

$$y = f(x-1) + g(x+1) \Rightarrow D = Df(x-1) \cap Dg(x+1) = (a+1, f+1] \cap [-2, b-1) = (-2, f+1)$$

$$\Rightarrow a+1 = -2 \Rightarrow a = -3, \quad b-1 = f+1 \Rightarrow b = f+2 \Rightarrow a-b = -3-f-2 = -f-5$$

$$Dg = [-3, 5] \Rightarrow -3 \leq x \leq 5 \Rightarrow -\frac{1}{5} \leq \frac{x}{5} + 1 \leq \frac{4}{5} \Rightarrow Df = [-\frac{1}{5}, \frac{4}{5}]$$

$$Rg = [-1, 2] \Rightarrow -1 \leq f \leq 2 \Rightarrow -5 \leq 2f-3 \leq 1 \Rightarrow 0 \leq |2f-3| \leq 5$$

$$0 \leq |2f-3| \leq 5 \Rightarrow Rf = [0, 5]$$

$$f(n) = \left| \frac{n+1}{n-1} \right| \xrightarrow{\text{عوض}} \left| \frac{n-1}{n-1} \right| \xrightarrow{\text{بسط}} \left| \frac{n-1}{n-1} \right| + 1 = g(n) \rightarrow n+g(n) < 0$$

$$\Rightarrow n + \left| \frac{n-1}{n-1} \right| < 0 \Rightarrow n < -1 \quad (1)$$

$$\xrightarrow{(-\infty, -1)} \frac{n-1}{n-1} > 0 \Rightarrow n+1 + \frac{n-1}{n-1} < 0 \Rightarrow \frac{n^2 - fn}{n-1} < 0 \rightarrow \text{حالات مختلفه من حيث الإشارة}$$

$$\Rightarrow \frac{-\sqrt{f} \quad \sqrt{f}}{+1-1+} = (-\infty, -\sqrt{f}) \cup (\sqrt{f}, +\infty) \quad (2) \quad \xrightarrow{f=1} (-\infty, -\sqrt{f})$$