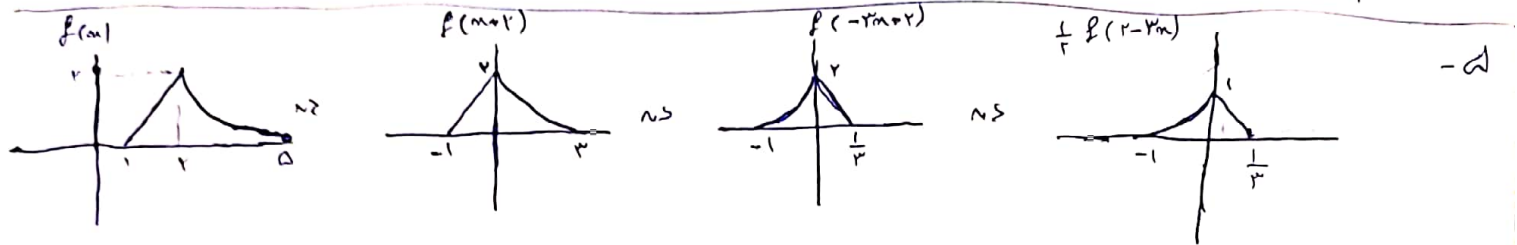
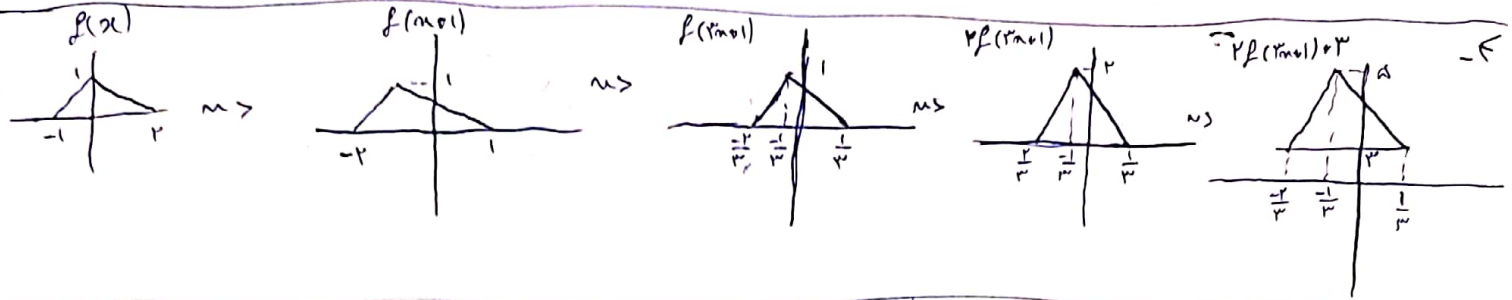


$P_{f(m)}: [-r, r] \rightsquigarrow D_{f(rm+r)} \Rightarrow \left. \begin{aligned} -r \leq \frac{rm+r}{a} \leq r \\ -1 \leq rm+r \leq r_0 \end{aligned} \right\} \begin{aligned} -1 \leq rm \leq 1 \\ -r \leq r \leq r_0 \end{aligned} \Rightarrow D: [-r, r]$

$D_{f(rm-r)}: [-r, r] \rightsquigarrow -r \leq r \leq r \rightsquigarrow -r \leq rm \leq r \rightsquigarrow -1 \leq rm-r \leq r \rightsquigarrow D_f: [-1, 1]$

$D_{f(\frac{rm+1}{r})}: [-1, r] \rightsquigarrow -1 \leq r \leq r \left\{ \begin{aligned} -r \leq rm < 1 \\ -r \leq rm+1 < 1 \\ -1 \leq \frac{rm+1}{r} < 1 \end{aligned} \right. \rightsquigarrow D_{f(r-an)}: \left\{ \begin{aligned} -1 \leq r-an < 1 \\ -r \leq -an < r \\ -\frac{r}{a} < n \leq \frac{r}{a} \end{aligned} \right. \Rightarrow D_f: \left(-\frac{r}{a}, \frac{r}{a} \right]$



$A: (f, r) \xrightarrow{\text{تحويل}} \frac{1}{r}(x-f)^r + r = 0 \rightsquigarrow x-f = \pm r \Rightarrow \boxed{x = 1, V}$
 $x_{\text{ext}}: \frac{r}{a}$
 $y_{\text{ext}}: \frac{r}{ra}$

$x_{\text{ext}}: rx+r=1 \rightsquigarrow x = -\frac{1}{r} \left\{ \begin{aligned} x_{\text{ext}}: B = 1 - rf(1) \rightsquigarrow B = -V \end{aligned} \right. \rightsquigarrow \boxed{AB = \frac{V}{r}}$

$D_f: (a, f] \rightsquigarrow D_{f(m)}: (a, d]$
 $D_g: [-1, b) \rightsquigarrow D_g(x+1): [-r, b-1)$
 $D_{f+g}: (-r, d) = (a, d] \cap [-r, b-1)$
 $a+1 = -r \rightsquigarrow a = -r$
 $b-1 = d \rightsquigarrow b = r \Rightarrow \boxed{a-b = -r}$

$D_{f(\frac{x}{r}+1)}: [-r, d] \rightsquigarrow -r \leq x \leq d \rightsquigarrow -\frac{r}{r} \leq \frac{x}{r}+1 \leq \frac{d}{r} \rightsquigarrow D_{f(\frac{x}{r}+1)}: \left[-\frac{1}{r}, \frac{d}{r} \right]$

$R_{f(\frac{x}{r}+1)}: [-1, r] \rightsquigarrow -1 \leq f(m) \leq r \rightsquigarrow -a \leq rf(m)-r \leq 1 \rightsquigarrow 0 \leq \sqrt{1+rf(m)+r} \leq \sqrt{a}$
 $-r \leq rf(m) \leq r \rightsquigarrow 0 \leq |rf(m)-r| \leq a \Rightarrow \boxed{R_f: \sqrt{1+rf(m)+r}: [0, \sqrt{a}]}$

$\left| \frac{x+1}{ra+1} \right| \xrightarrow{\text{تحويل}} \left| \frac{x-1}{r(a-r)+1} \right| = \left| \frac{x-1}{ra-r} \right| \xrightarrow{\text{تحويل}} \left| \frac{x-1}{ra-r} \right| + 1 \rightsquigarrow g(m) \Rightarrow \boxed{x: (-\infty, -\sqrt{r})}$

$x \wedge \left\{ \begin{aligned} \left| \frac{x-1}{ra-r} \right| + 1 < 0 \\ \left| \frac{x-1}{ra-r} \right| < -x-1 \end{aligned} \right. \left\{ \begin{aligned} -x-1 > 0 \\ x < -1 \end{aligned} \right. \rightsquigarrow \left\{ \begin{aligned} |m-1| = |-x| \\ |ra-r| = r-ra \end{aligned} \right. \left\{ \begin{aligned} \frac{1-x}{r-ra} < -x-1 \\ 1-x < (-x-1)(r-ra) \end{aligned} \right. \left\{ \begin{aligned} 1-x < ra-r \\ ra-r > 1 \\ x > r \end{aligned} \right. \rightsquigarrow \begin{aligned} x > \sqrt{r} \\ x < -\sqrt{r} \end{aligned}$