

$2u+1=3 \rightarrow u=1$ $u+2=3 \rightarrow u=1$ $f(3)+f(3)=3(1)+f(3)$ $f(3)=3$ (۱)
 $f(u)=au+b$ $a(2u+1)+b+a(u+2)+b=3u+3$ $2au+a+b+a+2a+b=3u+3$
 $3au+3a+2b=3u+3 \rightarrow \begin{cases} 3a=3 & a=1 \\ 3a+2b=3 & a=1 \rightarrow b=0 \end{cases}$ $f(u)=u$ $y=\sqrt{u-u^2}$ $R_y=[0 \frac{1}{2}]$

$f(u)=\frac{u^3-fu}{u+2}=\frac{u(u-2)(u+2)}{u+2}=u(u-2)$ (۲)
 $D_f=1R-\{-2, 3\}$ $\frac{-b}{2a}=1 \rightarrow f(1)=-1$ $f(u)=1$ است در دامنه نیست.
 $R_f=[-1 +\infty)-\{1\}$ $f(\frac{-2+3}{-1})=-1(-1-2)=3$

$y=\sqrt[3]{u^3-6u^2+12u-8}=\sqrt[3]{(u-2)^3}=u-2$ $a=-6, b=12$ (۳)
 $D_f=[-6 \ 12]$ $R_f=[-1 \ 0]$

$\frac{u+1}{1-u} > 0$ $D_y=(-1 \ 1)$ $u^r=0 \rightarrow y_r=\frac{-1}{b}$ $u^r=+\infty \rightarrow y_r=a$ (۴)
 $D_y=R_y \rightarrow \frac{-1}{b}=-1$ $b=1$ $a=1$ $a+b=1+1=2$

$y=[u]+[u+\frac{1}{p}]$ (۵)
 $\begin{cases} 1 & \frac{1}{p} \leq u < 1 \\ 2 & 1 \leq u < \frac{p}{p} \\ 3 & \frac{p}{p} \leq u < 2 \end{cases}$

$\frac{|u+1|}{|au+3|} < 1 \xrightarrow{\text{تواند}} \frac{(u+1)^2}{(au+3)^2} < 1$ $(u+1)^2 < (au+3)^2$ $u^2+2u+1 < a^2u^2+6au+9$ (۶)
 $(a^2-1)u^2+(6a-2)u+8 > 0$ $\Delta=0 \rightarrow a=3$ $1u^2+12u+8=1(u^2+2u+1)=1(u+1)^2$
 $b=-1$ $a-b=3-(-1)=4$

$\begin{cases} u \geq 2 \\ y \geq 1 \end{cases} \rightarrow u-2+y-1=3$ $y=-u+6$ $\begin{cases} u < 2 \\ y \geq 1 \end{cases} \rightarrow -(u-2)+y-1=3$ $y=u+2$ (۷)
 $\begin{cases} u < 2 \\ y < 1 \end{cases} \rightarrow -(u-2)-(y-1)=3$ $y=-u$ $\begin{cases} u \geq 2 \\ y < 1 \end{cases} \rightarrow u-2-(y-1)=3$ $y=u-4$

الف) $|u-1|+|y-2|=1$ $u=1, y=2$ $|u-1|-|y-2|=-3$ (۸)
 $|y-2|-|u-1|=3$