

$$f(n) \rightarrow an+b$$

$$f(rn+1) + f(n+r) = rn + f(r)$$

$$\xrightarrow[r=1]{rn+1=r} f(r) + f(r) = r(1) + f(r) \Rightarrow f(r) = r$$

$$\rightarrow f(rn+1) + f(n+r) = rn + r$$

$$a(rn+1) + b + a(n+r) + b$$

$$ran + a + an + ra + rb = rn + r$$

$$(ra)n + ra + rb = rn + r \rightarrow ra = r \rightarrow a = 1$$

$$a=1 \begin{cases} ra+rb=r \\ r+rb=r \\ b=0 \end{cases}$$

$$y = \sqrt{f(n)-n} \rightarrow y = \sqrt{n-n} = 0$$

$$1 \leq n \leq \infty \rightarrow \text{ext} \left| \frac{1}{r} = \frac{1}{r} \right|$$

$$R = [-\infty, \frac{1}{r}]$$

$$f(n) = \frac{n^2 - \varepsilon n}{n+r} \rightarrow \frac{n(n-\varepsilon)}{n+r}$$

$$\rightarrow \frac{n(n-r)(n+r)}{n+r} = n(n-r) = n^2 - rn$$

$$\text{ext} \left| \frac{-b}{ra} = \frac{-r}{r} = -1 \right|$$

$$R_f \rightarrow [-1, +\infty) - \{1\}$$

$$\frac{a+b}{rc} \rightarrow \frac{-r+r}{-r} = (-1)$$

$$f(-1) \Rightarrow \frac{-1+\varepsilon}{-1+r} = \frac{r}{1} = r$$

$$\frac{n^2 - \varepsilon n}{n+r} = \Lambda \rightarrow \Lambda n + r = n^2 - \varepsilon n$$

$$n^2 - 12n - 14 = 0$$

$$n^2 - 12n - \Lambda = 0$$

$$\frac{r \pm \sqrt{r^2 + 4r}}{r}$$

تابع فضا است  $\rightarrow$  زیر و بار صاف در هم می آید

$$(n+a)^3 = n^3 + 3an^2 + 3a^2n + a^3 \rightarrow (n-r)^3$$

$$\sqrt{(n-r)^3} = n-r \quad \text{زیر و بار صاف در هم می آید} \quad (n-r)^3 = n^3 + 12n - 8n^2 - \Lambda$$

$$a=12 \quad b=-4$$

$$D = [-4, 12]$$

$$y = n-r \xrightarrow[n=12]{n=-4} \begin{matrix} -4-r = -\Lambda \\ 12-r = 10 \end{matrix} \rightarrow R = [-\Lambda, 10]$$

$$\frac{n+1}{1-n} \geq 0 \rightarrow \frac{-1}{-1+\frac{1}{n}}$$

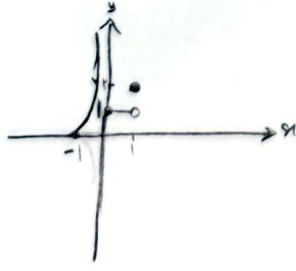
$$\rightarrow R_f = [-1, +1)$$

$$\begin{cases} a+b=0 \\ -1+1=0 \end{cases}$$

$$g(n) = \frac{an^2-1}{n^2+b} \rightarrow R_g$$

$$R_g \left[ -\frac{1}{b}, a \right) = R_f$$

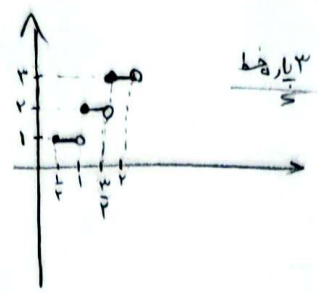
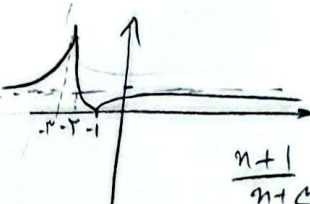
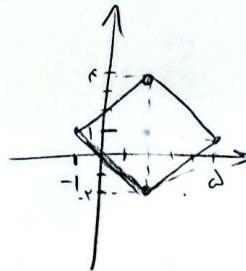
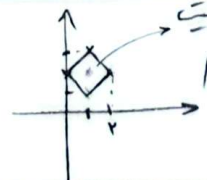
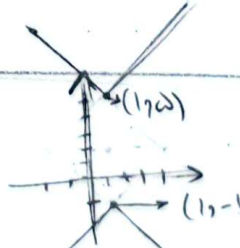
$$\rightarrow b = -1, a = 1$$



$$-1 \leq n < 0 \xrightarrow[n=-n]{[n]=-1} \frac{-1}{n} - 1 \rightarrow -\left(\frac{1}{n} + 1\right) \rightarrow n \rightarrow -1 \rightarrow 0$$

$$0 \leq n < 1 \xrightarrow[n=n]{[n]=0} 0 + 1 = 1$$

$$n=1 \rightarrow \frac{1}{1} + \frac{1}{1} = 2$$

|                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                      |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| $\frac{1}{2} \leq n < 1 \xrightarrow{[n]=0} 0+1=1$ $\frac{1}{2} \leq n < 1 \xrightarrow{[n+\frac{1}{2}]=1} 1+1=2$ $\frac{3}{2} \leq n < 2 \xrightarrow{[n]=1} 1+2=3$ $\frac{3}{2} \leq n < 2 \xrightarrow{[n+\frac{1}{2}]=2} 1+2=3$ |                                                                                                                                                                                                                                    | 6  |
| $\lim_{n \rightarrow \infty} \frac{1}{a} = 1 \rightarrow \frac{1}{a} = 1 \rightarrow a = 1$ $f(n) = \left  \frac{n+1}{-n+2} \right $ $a-b = 1 - (-2) = 3$                                                                           | <p>تابع در <math>+\infty</math> از 1 یگانه است <math>\leftarrow y=1</math> محاسب است</p>  <p><math>\frac{a}{c} = 1</math></p> <p><math>\frac{n+1}{n+2} = -1 \rightarrow n = -2</math></p> <p><math>b = -2</math></p>                | 7  |
| $ n-2  +  y-1  = 3$ $\boxed{n=2} \quad \boxed{y=1}$ $n-2-y+1=3$ $n-2=y$                                                                                                                                                             |  $-n+2+y-1=3 \rightarrow y=n+2$ $-n=n-2 \rightarrow n=2, y=-2$ $n+2-3-n \rightarrow 2n=1 \rightarrow n=1/2$ $y-n=n-2 \rightarrow n=y+2$ $-n=n+2 \rightarrow n=-1, y=1$ $-n+2-y+1=3 \rightarrow y=-n$ $n-2+y-1=3 \rightarrow y=6-n$ | 8  |
| $\Rightarrow  n-1  +  y-2  = 1$ $\boxed{n=1} \quad \boxed{y=2}$                                                                                                                                                                     |  <p>نقطه (1, 2) در نمودار است</p> <p>و سایر نقاط هموار است</p>                                                                                | 9  |
| $\frac{-b}{a}$ $r_n - a - b \mid r_n + a + b$ $r - a > \rightarrow a < r$                                                                                                                                                           | <p><math>R = IR \leftarrow</math> حالت یک به یک (یکوا و الیه... باشد)</p> $r+a > 0 \rightarrow a > -r$ $a \in (-r, r)$                                                                                                                                                                                               | 10 |