

$$f(n) - n + 1 \geq 0 \Rightarrow f(n) \geq n - 1 \Rightarrow f(n) \begin{cases} \geq n - 1 & [n] \geq k \rightarrow n \geq \Delta \\ \leq k + 1 & [n] \leq k \rightarrow n < \Delta \end{cases}$$

$$k + 1 \geq n - 1 \Rightarrow n \leq 2 \rightarrow n \geq \Delta$$

$$k + 1 \geq n - 1 \Rightarrow k \geq n - 2 \Rightarrow -\frac{k}{2} \leq n < \Delta \Rightarrow D_f = \left[-\frac{k}{2} + \infty\right)$$

$$\frac{rk^r + r^2n^r + (1)n + r}{(k^r + k + 1)^r} = \frac{r(1n^r + kn + r + 1)}{(r + 1)^k} = \frac{r(r + 1)^r}{(r + 1)^k} =$$

$$\frac{r}{r + 1} \Rightarrow r + 1 \neq 0 \Rightarrow n \neq -\frac{1}{r} \Rightarrow D_f = \mathbb{R} - \left\{-\frac{1}{r}\right\}$$

$$f(n) = \begin{cases} \frac{n^r + rn^r - n - r}{n^r - 1} & n \neq \pm 1 \\ \frac{an + r}{n + b} & n = \pm 1 \end{cases} \quad g(n) = n + C$$

$$f(0) = r \Rightarrow g(0) = r \rightarrow 0 + C = r \Rightarrow C = r \Rightarrow g(n) = n + r$$

$$f(1) = \frac{a + r}{b + 1} = r \Rightarrow rb + r = a + r \Rightarrow rb - a = -1$$

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

$$rb - a = -1$$

$$b + C = \frac{1}{r} + r = \frac{\Delta}{r}$$

$$rb = r \Rightarrow b = \frac{1}{r}, a = \frac{\Delta}{r}$$

$$f(n) = \frac{n+1}{n-C} \quad \text{و} \quad g(n) = \frac{(n+1)(n-1)}{n^r - 1} \Rightarrow \text{چون در تابع برابرند پسخرج و باید یک ریشه مضاعف داشته باشند و یکی از عبارت ها با صورت ساده شود}$$

$$n^r - n + 1 = (n-1)^r = n^r + an + b$$

$$a = -r, b = 1, C = 1 \Rightarrow a + b + C = 1 + 1 - r = 0$$

$$f(n) = (n-r)^r (n-1) \quad g(n) = f(n+1) + f(1-n) \rightarrow -\omega$$

$$f(n+1) = \underbrace{[(n+1)-r]^r}_{(n-r)^r} \underbrace{[(n+1)-1]}_n = (n-r)^r (n) = (n^r - rn + r)(n) = n^r - rn^r + rn$$

$$f(1-n) = \underbrace{[(1-n)-r]^r}_{(-n-r)^r} \underbrace{[(1-n)-1]}_{-n} = (n+r)^r (-n) = -n^r - rn^r - rn$$

$$g(n) = n^r - rn^r + rn - n^r - rn^r - rn = -\underline{2n^r}$$

$$f(1-rn) \begin{cases} r\sqrt{n} + r & ; n \leq 0 \\ r\sqrt{n} & ; n > 0 \end{cases}$$

$$f(-1) \rightarrow 1-rn = -1 \Rightarrow rn = r \Rightarrow n = 1 \Rightarrow f(-1) = r\sqrt{1} = r \quad -\gamma$$

$$f(r) \rightarrow 1-rn = r \Rightarrow rn = -r \Rightarrow n = -1 \Rightarrow f(r) = r\sqrt{-1} + r = 1$$

$$f(-1) + f(r) = \underline{1+r}$$

$$f(n+\sqrt{n}) = n^r + rn \rightarrow f(y) \rightarrow y = n+\sqrt{n} \rightarrow n+\sqrt{n}-y=0 \Rightarrow n=r \quad -\vee$$

$$f(y) = r^r + r(r) = r^2 y + 1r = \underline{r^2 y + 1r}$$

$$f(n) = n^r + n \quad f(n-1) + f(1-n) = (n-1)^r + (n-1) + (1-n)^r + (1-n) = -1$$

$$(n-1)^r + n - 1 - (n-1)^r + 1 - n = 0$$

$$f(n) = \sqrt{kn - \frac{r}{k}a} + k - 1 \quad g(n) = \sqrt{b - kn} + rk \quad rf - g = f(1, k) \quad -\theta$$

$$f(1) = \sqrt{k - \frac{r}{k}a} + k - 1 \quad g(1) = \sqrt{b - k} + rk$$

$$\begin{cases} kn - \frac{r}{k}a \geq 0 \rightarrow kn \geq \frac{r}{k}a \Rightarrow n \geq \frac{r}{k^2}a \\ b - kn \geq 0 \rightarrow kn \leq b \Rightarrow n \leq \frac{b}{k} \end{cases} \xrightarrow{1=\frac{r}{k^2}a} \frac{r}{k^2}a = \frac{b}{k} = 1 \Rightarrow b = r, a = \frac{r}{k^2}$$

$$rf - g = r(\sqrt{k - \frac{r}{k}a} + k - 1) - (\sqrt{b - k} + rk) = r\sqrt{k - \frac{r}{k}a} + rk - r - \sqrt{b - k} - rk = k \Rightarrow$$

$$r\sqrt{k - \frac{r}{k}a} - \sqrt{b - k} = rk + r \xrightarrow{a = \frac{r}{k^2}, b = r} 0 - 0 = rk + r \Rightarrow rk = -r, k = -1$$

$$\frac{r}{k^2}a - \frac{b}{k} - k = r\left(\frac{r}{k^2}\right) - \frac{k}{r} - (-1) = \underline{r}$$

$$f(n) = \sqrt{m-n} + n \quad g(n) = \sqrt{2n+2} \quad D_{f \circ g} = [-1, V] \quad -10$$

$$f - g(n) = 4\sqrt{2} \quad 2n+2 \geq 0 \Rightarrow n \geq -1$$

$$m-n \geq 0 \Rightarrow n \leq m \xrightarrow{\text{بأنه بـ } m} m = V$$

$$f - g(n) = 4\sqrt{2} \rightarrow f - 2\sqrt{2} = 4\sqrt{2} \Rightarrow f = 6\sqrt{2} \Rightarrow$$

$$\underbrace{\sqrt{V-n}}_{\sqrt{2}=2} + n = 6\sqrt{2} \Rightarrow n = 6\sqrt{2} - 2 \rightarrow m+n = V + 6\sqrt{2} - 2 - 2 = \underline{V + 6\sqrt{2}}$$