

۱۲

$$\sqrt{f(x) - x + 1}$$

$$f(x) - x + 1 \geq 0 \quad D_f = \mathbb{R} \setminus (-1)$$

۵ (۱)

صفحه آف...

$$\frac{r^2 x^r + r^2 x^{r+1} + 1 \cdot x + r}{(x^r + x^{r+1})^r} = \frac{r^2 (x^r + 1) + r}{(x^r + x^{r+1})^r} = \frac{r^2 (x^{r+1})^r}{(x^{r+1})^r} = \frac{r^2}{x^{r+1}}$$

$$x^{r+1} = 0 \rightarrow x = -\frac{1}{r} \quad D_f = \mathbb{R} \setminus \left\{ -\frac{1}{r} \right\}$$

(۲)

(۲)

$$u \xrightarrow{\text{جواب}} u = r \quad \frac{u^r + r u^r - u - r}{u^r - 1} = \frac{r}{r} = \frac{u + C}{r} \rightarrow r + C = r \rightarrow C = 0$$

(۳)

(۲)

$$u = \begin{cases} 1 \rightarrow \frac{a+r}{1+b} = \frac{u+C}{1+r} \rightarrow \frac{a+r}{b+1} = r \rightarrow \begin{cases} r b + r = a + r \\ -a - b = -r \end{cases} \rightarrow \begin{cases} a = 0 \\ b = -1 \end{cases} \\ -1 \rightarrow \frac{-a+r}{b-1} = -1+r \rightarrow -a+r = b-1 \rightarrow \begin{cases} -a-b = -r \end{cases} \rightarrow \begin{cases} a = 0 \\ b = -1 \end{cases} \end{cases}$$

$$b + C = \frac{1}{r} + r = \left(\frac{1}{r} + r \right)$$

۵ (۴)

(۵)

(۲)

$$f(u+1) = (u-1)^r (u) \rightarrow (u^r + r - r u)(u) = u^r + r u - r u^r$$

$$f(1-u) = (-u-1)^r (-u) \rightarrow (u^r + r + r u)(-u) = -u^r - r u - r u^r$$

$$\rightarrow f(u+1) + f(u-1) = -1$$

(۲) (۷)

$$f(-1) \rightarrow 1-2u = -1 \rightarrow \underline{u=1} \rightarrow \sqrt[3]{-1} \rightarrow \sqrt[3]{-1} = \boxed{-1} \checkmark$$

$$f(r) \rightarrow 1-2u = r \rightarrow u = -1 \rightarrow \sqrt[3]{-1} + r \rightarrow \boxed{r-1} \checkmark \rightarrow f(-1) + f(r) = \boxed{r} \checkmark$$

(۲) (۷)

$$f(y) \rightarrow x + \sqrt{x} = y \rightarrow \boxed{x=y} \checkmark \quad f(y) = 20y + 12 = \boxed{24} \checkmark$$

(۲) (۱)

$$f(u-1) \rightarrow (u-1)^3 + u - 1 \rightarrow u^3 - 1 + 3u - 3u^2 + u - 1$$

$$f(-u+1) \rightarrow (1-u)^3 - u + 1 \rightarrow -u^3 + 1 + 3u^2 - 3u - u + 1 \rightarrow f(u-1) + f(1-u) = \underline{2} \checkmark$$

مفرد

سوالات ۹ و ۱۰ به صفحہ

$$f(n) = \begin{cases} r_{n-1} & n \geq \omega \\ r_{n+r} & n < \omega \end{cases}$$

-1

$$\begin{cases} n \geq \omega \rightarrow y = \sqrt{r_{n-1} - n + 1} \rightarrow y = \sqrt{n} & n \geq 0 \xrightarrow{n} n \geq \omega \\ n < \omega \rightarrow y = \sqrt{r_{n+r} - n + 1} \rightarrow y = \sqrt{r_{n+r}} & n \geq -\frac{r}{3} \xrightarrow{n} -\frac{r}{3} \leq n \leq \omega \end{cases}$$

$$D_y = [-\frac{r}{3}, +\infty)$$

$$D_f = \mathbb{R} - \{c\}$$

۴- چون دو تابع با هم برابرند دامنه‌های برابر داشتند :
یعنی برای g در خارج ریشه ضعیف داشته :

$$n^r + an + b = (n - c)^r = n^r - rcn + c^r \rightarrow \begin{cases} a = -rc \\ b = c^r \end{cases}$$

$$g(n) = f(n) \rightarrow$$

همچنین ضابطه‌ها $\frac{c}{r}$ دارند :

$$\frac{n^r - 1}{n^r + an + b} = \frac{n+1}{n-c} \rightarrow \frac{(n-1)(n+1)}{(n-c)^r} = \frac{n+1}{n-c} \rightarrow \begin{cases} c = 1 \\ a = -2 \\ b = 1 \end{cases} \left\{ \begin{array}{l} \text{جواب: } \boxed{5} \end{array} \right.$$

۹- اشتراک دامنه f و g فقط $n=1$ است یعنی :

$$D_f = [\frac{ra}{r}, +\infty) \quad D_g = (-\infty, \frac{b}{r}] \xrightarrow{\cap} \{1\}$$

$$\frac{ra}{r} = \frac{b}{r} = 1 \rightarrow a = \frac{r}{3} \quad b = r$$

$$rf(1) - g(1) = k \rightarrow rK - r - rK = k \rightarrow k = -1$$

$$ra - \frac{b}{r} = k = \boxed{3}$$

$$D_f = (-\infty, m]$$

$$\Rightarrow D_{f \times g} = \{-1, V\} \rightarrow \boxed{m = V}$$

-1.

$$D_g = [-1, +\infty)$$

$$(f-g)(r) = r + n - r\sqrt{r} = 4\sqrt{r} \rightarrow \boxed{n = 4\sqrt{r} - r}$$

$$m + n = \boxed{4\sqrt{r} + \Delta}$$