

$$x = -1 \rightarrow f(1 - r(-1)) = f(r) = \sqrt[3]{-1} + r = 1$$

$$x = 1 \rightarrow f(1 - r(1)) = f(-1) = \sqrt[3]{1} = r$$

$$1 + r = 2$$

(2)

4

$$f(y) \rightarrow x = r \rightarrow f(r + \sqrt{r}) = f(y) = r + w(r) = 2y$$

(2)

✓

$$f(n-1) + f(1-n) = \underbrace{(n-1)^r}_{n-1-r+\frac{r}{n}} + \underbrace{(n-1)}_{1-n-r+\frac{r}{n}} + \underbrace{(1-n)^r}_{1-n-r+\frac{r}{n}} + (1-n) = 0$$

(2)

1

$$\begin{aligned} f(m) &= \sqrt{m-ra} + k - 1 \rightarrow Df \Rightarrow r_m - ra \geq 0 \\ g(m) &= \sqrt{b-rm} + rk \rightarrow Dg \Rightarrow b-rm \geq 0 \end{aligned} \quad \left\{ \begin{aligned} n &\geq \frac{ra}{r} \\ n &\geq \frac{b}{r} \end{aligned} \right. \quad \left\{ \begin{aligned} \frac{ra}{r} &= \frac{b}{r} = 1 \rightarrow \begin{cases} a \geq r \\ b \geq r \end{cases} \end{aligned} \right.$$

$$\begin{aligned} f(m) &= \sqrt{r_m - r} + k - 1 \\ g(m) &= \sqrt{r - r_m} + rk \end{aligned} \quad (f-g)(1) = r(0+k-1) - (0+rk) = -r-k = k$$

$$g(m) = \sqrt{r_m + r} \quad Dg \Rightarrow r_m + r \geq 0$$

$$f(m) = \sqrt{m-n} + n \quad Df \Rightarrow m-n \geq 0$$

$$\begin{aligned} (f-g)(r) &= \sqrt{V-r} + n - \sqrt{r(r)+r} = 4\sqrt{r} \\ &= r + n - 2\sqrt{r} = 4\sqrt{r} \\ n &= 4\sqrt{r} - r \end{aligned}$$

$$m + n = V + 4\sqrt{r} - r = 4\sqrt{r} + 2$$

(2)

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$$f(x) = \begin{cases} x-1 & x \geq 0 \\ x+2 & x < 0 \end{cases}$$

-1

$$\begin{cases} x \geq 0 \rightarrow y = \sqrt{x-1-x+1} \rightarrow y = \sqrt{x} & x \geq 0 \xrightarrow{\cap} x \geq 0 \\ x < 0 \rightarrow y = \sqrt{x+2-x+1} \rightarrow y = \sqrt{x+2} & x \geq -\frac{2}{3} \xrightarrow{\cap} -\frac{2}{3} \leq x \leq 0 \end{cases}$$

$$D_y = [-\frac{2}{3}, +\infty)$$

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

۴- چون دو تابع با هم برابرند دامنه‌های برابر داشته‌اند :

یعنی $ax^2 + bx + c$ در مخزن ریشه مضاعف داشته :

$$x^2 + ax + b = (x-c)^2 = x^2 - 2cx + c^2 \rightarrow \begin{cases} a = -2c \\ b = c^2 \end{cases}$$

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

همچنین ضرایب x^2 و x برابرند :

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