

$$xy \geq 0 \Rightarrow \begin{array}{l} \text{یا هر دو باید + باشند} \\ \text{یا هر دو باید - باشند} \end{array} \Rightarrow \underline{D_f = [-\omega, 0] \cup [2, \omega]}$$

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$$f(n) \neq 0 \Rightarrow f(n) \neq \{-3, 0, 2, \omega\}$$

$$\frac{-n}{f(n)} \geq 0 \Rightarrow \text{با } f(n) \text{ ضابطه علامت هم باشند}$$

$$\Rightarrow D_f = \{-2, -1, 1\} \rightarrow$$

شامل ۳ عدد

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$$\frac{x}{f(x)} = \frac{n}{y} \leq 0 \quad -\frac{n}{y} \geq 0 \Rightarrow \frac{n}{y} \leq 0$$

$$\underline{f(2)} \rightarrow f(2) - 2f(2) = 2$$

$$-f(2) = 2 \Rightarrow f(2) = -2$$

$$\underline{f(-2)} \rightarrow f(-2) + f(2) = \frac{1}{2} - \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 1$$

$$f(-2) = 10$$

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$$* f(\omega) \rightarrow \omega - \sqrt{\omega + 1} = 2 \Rightarrow f(f(\omega)) = f(2)$$

$$f(2) \rightarrow 2(2) + 3 = 7 \Rightarrow \underline{f(f(\omega)) = 7}$$

$$f(1) \rightarrow 2(1) + 3 = \omega \Rightarrow \underline{f(f(1)) = f(\omega)} \xrightarrow{*} 2$$

$$\rightarrow f(f(\omega)) + f(f(1)) = 7 + 2 = 9$$

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$$a(n-1)^2 - b(n-1) + 2 - an^2 + bn - 2 = 4n + 2$$

$$an^2 - 2an + a - bn + b + 2 - an^2 + bn - 2 = 4n + 2$$

$$-2an + a + b = 4n + 2 \rightarrow \begin{cases} -2an = 4n \rightarrow a = -2 \\ a + b = 2 \rightarrow b = 4 \end{cases}$$

$$a - b = -2 - 4 = -6$$

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$$r f(r) \rightarrow r \left(\frac{r^2 - r(r) + 1}{1} \right) = r$$

$$f(-1) \rightarrow ((-1)^2 - r(-1) + 1) = \omega$$

$$f^2(r) \rightarrow (r^2 - r(r) + 1)^2 = 1$$

$$\frac{r f(r) + f(-1)}{f^2(r)} = \frac{r + \omega}{1} = \vee$$

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$$r f(r) = r(r(r) + 1) = r9$$

$$r f(-r) = r(1 - r^2) = \wedge$$

$$f(r) = r(r) + 1 = \vee$$

$$\frac{r f(r) - r f(-r)}{f(r)} = \frac{r1}{\vee}$$

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$$f(f(r)) \rightarrow f(r) = 1 \rightarrow f(1) = 4$$

$$f(f(r)) \rightarrow f(r) \neq r \rightarrow f(r) = 4$$

$$f(1) = r \rightarrow f(1) = 4 \rightarrow 4 - r = r$$

$$\frac{f(f(r)) - f(f(r))}{f(1) - r} = \frac{4 - 4}{r} = 0$$

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$$f(\sqrt{r} - r) = \frac{(\sqrt{r} - r)^2 + r(\sqrt{r} - r) + 9}{(\sqrt{r} - r)^2 + r(\sqrt{r} - r) + \omega} = \frac{\cancel{r} + \cancel{r} - \cancel{r}\sqrt{r} + \cancel{r}\sqrt{r} - 1 + 9}{\cancel{r} + \cancel{r} - \cancel{r}\sqrt{r} + \cancel{r}\sqrt{r} - 1 + \omega} = \frac{1}{r} = r$$

$$f(\sqrt{r} - r) = r$$

$$f(r) \rightarrow \frac{r^2 + r(r) + 9}{r^2 + r(r) + \omega} = \frac{r1}{1\vee}$$

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$$(f(\sqrt{n}))^r \rightarrow \left(n + \frac{1}{n}\right)^r = n^r + \frac{1}{n^r} + r$$

$$f(n) = n^r + \frac{1}{n^r}$$

$$(f(\sqrt{n}))^r - f(n) = \cancel{n^r} + \cancel{\frac{1}{n^r}} + r - \cancel{n^r} - \cancel{\frac{1}{n^r}} = \underline{r}$$

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