

14

یستم با مرتبه بنویس

حالا سوال

Df? $[-\frac{F}{P}, +\infty)$

(2) ①

$$f(x) = \begin{cases} Px - 1 & [x] > F \\ Px + P & [x] \leq F \end{cases}$$

$$y = \sqrt{f(x) - x + 1} \rightarrow f(x) - x + 1 \geq 0 \rightarrow f(x) \geq x - 1$$

صورت سوال

$$f(x) \rightarrow Px - 1 \geq x - 1 \rightarrow x \geq 0 \cap [x] > F \rightarrow \omega \leq x$$

$$x \geq \omega$$

$$\rightarrow Px + P \geq x - 1 \rightarrow Px \geq F - x \rightarrow x \geq -\frac{F}{P} \cap [x] \leq F \rightarrow -\frac{F}{P} \leq x < \omega$$

$$y = \frac{Px^2 + 4x^2 + 18x + P}{(Px^2 + Px + 1)^2} = \frac{Px^2 + 4x^2 + 4x + 12x^2 + 12x + P}{(Px + 1)^2} \quad (2)$$

(2)

$$\frac{4x(Px^2 + Px + 1) + P(Px^2 + Px + 1)}{(Px^2 + Px + 1)^2} = \frac{4x}{t} + \frac{P}{t} = \frac{4x + P}{t} = \frac{4x + P}{t = (Px + 1)}$$

$$\rightarrow Px + 1 = 0 \rightarrow x = -\frac{1}{P} \rightarrow Df = R - \{-\frac{1}{P}\} \checkmark$$

حالا سوال

P. v. P. ...

$$y = \frac{r^2 n^r + r^2 n^r + 1 n^r + r^2}{(r n^r + r n^r + 1)^r} = \frac{r^2 n^r + r^2 n^r + 4 n^r + 1 n^r + 1 n^r + r^2}{(2 n^r + 1)^r} \quad (1)$$

$$\frac{4 n^r (r n^r + r n^r + 1) + r^2 (r n^r + r n^r + 1)}{(r n^r + r n^r + 1)^r} = \frac{4 n^r}{t} + \frac{r^2}{t} = \frac{4 n^r + r^2}{t = (r n^r + 1)}$$

$$\rightarrow r n^r + 1 = 0 \rightarrow n = -\frac{1}{r} \rightarrow Df = R - \left\{ -\frac{1}{r} \right\}$$

نکات

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

صفتی آفر ...

$b + c = ? \rightarrow -r + r = 0$

$$\rightarrow n^r + r n^r - n - r = n^r (n + r) - (n + r) = (n + r) (n^r - 1) \rightarrow (n + r) (n^r - 1)$$

$$\rightarrow n = 0 \rightarrow n + r = r \rightarrow f(n) = g(n) = n + c \rightarrow c = g(n) \quad n^r = 1$$

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

$$\xrightarrow{n=1} f(n) = \frac{a n + r}{n + b} = \frac{a + r}{1 + b} \quad , \quad g(n) = 1 + r = r \rightarrow \frac{a + r}{1 + b} = r$$

$$a + r = r + r b$$

$$\xrightarrow{n=-1} f(n) = \frac{-a + r}{-1 + b} = 1, \quad g(n) = -1 + r = 1 \rightarrow \frac{-a + r}{-1 + b} = 1 \rightarrow -a + r = b - 1$$

$a - r b = 1, \quad a + b = r \rightarrow -r b = r - b \rightarrow b = r$

$$g(n) = \frac{n^r - 1}{n^r + a n + b} \quad f(n) = \frac{n + 1}{n - c} \quad a + b + c = ? \quad (1)$$

$$\frac{(n+1)(n+1)}{(n+1)(n-b)} \rightarrow f(n) = g(n) \rightarrow \frac{n+1}{n-b} = \frac{n+1}{n-c} \rightarrow b = c \quad \checkmark$$

REEF GROUP

حل المسائل

$$(a-1)(x-b) = x^2 + ax + b$$

(4) صيغة آفر...

$$x^2 - (b+1)x + b = x^2 + ax + b \rightarrow a = -b-1$$

$$a+b+c = ? \rightarrow -b-1+b+b = b-1$$

با این عدد ها شوغم بدست میاوردن

$$f(x) = (x-2)^2(x-1)$$

$$g(x) = f(x+1) + f(1-x)$$

(5)

(2)

$$f(x+1) = (x+1-2)^2(x+1-1) = (x-1)^2 x = (x^2 - 2x + 1)x = x^3 - 2x^2 + x$$

$$f(1-x) = f(1-x-2)^2(1-x-1) = (x+2)^2(-x) = (x^2 + 4x + 4)(-x) = -x^3 - 4x^2 - 4x$$

$$+x \rightarrow x^3 - 2x^2 + x - x^3 - 4x^2 - 4x = -2x^2 - 3x$$

$$f(1-x) = \begin{cases} \sqrt[4]{x} + 2 & x \leq 0 \\ \sqrt[4]{x} & x > 0 \end{cases}$$

$$f(-1) + f(3) = 2 + 1 = 3$$

$$1 - \sqrt{x} = -1 \rightarrow x = 1 \rightarrow \sqrt{x} = 1 \rightarrow 1 - \sqrt{x} = 0 \rightarrow x = 1$$

$$1 - \sqrt{x} = 2 \rightarrow x = -1 \rightarrow \sqrt[4]{x} + 2 = 2 \rightarrow x = 0$$

$$f(4) = 0$$

$$f(x + \sqrt{x}) = x^2 + x$$

(7) (2)

$$x + \sqrt{x} = 4 \rightarrow x = 4 \rightarrow 4^2 + 4 = 20$$

$$x + \sqrt{x} = 4 \rightarrow t^2 + t - 4 = 0 \rightarrow (t+2)(t-2) = 0$$

$$\sqrt{x} = t \rightarrow t = 2 \rightarrow x = 4$$

$$x = 4 \rightarrow x = 4$$

جواب

$$f(x) = x^p + x$$

$$f(x-1) + f(1-x) = 0 \quad \checkmark$$

(2) ①

$$f(x-1) = (x-1)^p + (x-1) = (x-1)^p + (x-1) \quad \checkmark$$

$$f(1-x) = (1-x)^p + (1-x) = -(x-1)^p - (x-1) \quad \checkmark$$

$$D_f = \left[\frac{r_a}{r}, +\infty\right) \quad D_g = (-\infty, \frac{b}{r}] \xrightarrow{\text{1}} \{1\} \quad \text{استدلال دانه f و g فقط 1 است}$$

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

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

$$r_a - \frac{b}{r} = K = -1$$

$$f(x) = \sqrt{m+x} + n$$

$$D_{f \times g} = [-1, v]$$

$$m+n = 9$$

$$g(x) = \sqrt{rx+r}$$

$$f-g(x) = 4\sqrt{r}$$

$$v + 1\sqrt{r} - r = 4\sqrt{r} \quad \checkmark$$

$$D_{f \times g} = D_f \cap D_g \rightarrow D_f = \{x \leq m\} \quad D_g = -1 \leq x \leq \frac{b}{r}$$

$$D_{f \times g} = [-1, v] = [-1, m] \rightarrow m = v$$

$$f(x) - g(x) = 4\sqrt{r} \rightarrow f(x) = 1\sqrt{r}$$

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

۳- برای تساوی دو تابع (۱) دامنه‌های برابر

(۲) ضابطه‌های یکسان

$$f(n) = \begin{cases} \frac{(n-1)(n^2+3n+2)}{(n-1)(n+1)} = n+2 \\ \frac{an+2}{n+b} \end{cases}$$

$$n \neq \mp 1 \Rightarrow c = 2$$

$$n = \mp 1$$

مقدار تابع در $n = \mp 1$ باید در دو تابع f و g برابر باشند:

$$\left\{ \begin{array}{l} \rightarrow a = 2, 5, b = 0, 5 \rightarrow b+c = 2, 5 \end{array} \right.$$

$$f(1) = \frac{a+2}{1+b} = 3 \rightarrow a-3b = 1$$

$$f(-1) = \frac{-a+2}{-1+b} = 1 \rightarrow a+b = 3$$

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

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

یعنی g را در خارج ریشه مضاعف داشته:

$$n^2+an+b = (n-c)^2 = n^2-2cn+c^2 \rightarrow \begin{cases} a = -2c \\ b = c^2 \end{cases}$$

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

همچنین ضابطه‌های یکسان دارند:

$$\frac{n^2-1}{n^2+an+b} = \frac{n+1}{n-c} \rightarrow \frac{(n-1)\cancel{(n+1)}}{(n-c)^2} = \frac{\cancel{n+1}}{\cancel{n-c}} \rightarrow \begin{cases} c = 1 \\ a = -2 \\ b = 1 \end{cases} \text{ جواب: } \boxed{5}$$