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پروژه امتحانی یا زرم به A تکالیف

1- ① $\frac{1}{x} = \frac{1}{x}$ ② $\frac{n-1}{n} - \frac{n}{n-1} = \frac{x^{n-1} - x^{n+1} - x^{n-1}}{n(n-1)}$

$f(x) = \frac{1}{x}$ $Df = (-\infty, 0) \cup [\frac{1}{r}, 1)$

رشته‌های مرتب: $-1, 0$ $\frac{n}{n-1} + \frac{1}{n+1} \neq 0$

رشته‌های منبج: $1, -2$

$Df = \mathbb{R} - \{-1, 0, 1, -2, \frac{1}{r}\}$ $\frac{n+4+n-1}{(n-1)(n+1)} \neq 0 \Rightarrow n \neq \frac{-5}{2}$

الف)

$x^{-n} - 9 = 0 \Rightarrow x^{-n} = 9 \Rightarrow x = -2$

$\frac{x}{r} = r \Rightarrow x = \frac{r}{r}$ $Df = (-\infty, -2] \cup [\frac{r}{r}, \infty)$

ب)

① $n-1 \geq 0 \Rightarrow n \geq 1$

② $\sqrt[n]{n-1} \geq 0 \Rightarrow \sqrt[n]{n-1} \leq 1$ $Df = [1, nr]$

$\sqrt[n]{n-1} \geq 0 \Rightarrow n-1 \leq 1 \Rightarrow n \leq 2$

① $x^2 - 1 \geq 0 \Rightarrow x \geq 1$ ② $\sqrt{x^2 - 1} + 1 \neq 0 \checkmark$

③ $x^2 - x - 2 > 0 \Rightarrow (x-2)(x+1) > 0 \Rightarrow x > 2$ $Df = (-\infty, -1) \cup (2, \infty)$

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

$(- (x^2 + x - 2)) = 0 \Rightarrow (x^2 + x - 2) = 0$ $(x + \frac{1}{r})(x - \frac{r}{r}) = 0$ $a + b = -\frac{1}{r} + \frac{r}{r} = 1$

$\frac{x}{x-2} \geq 0 \Rightarrow x \geq 2$ $(x \geq 1)$

$\frac{x}{x+2} \geq 0 \Rightarrow x \geq -2$

$g(x) = \frac{x}{x+2}$

$x \geq 1$

$x < 1 \Rightarrow -2 \leq x < 1$

$Df = [-2, \infty)$

$$\sin \frac{\pi}{3} = \frac{\sqrt{r}}{r}$$

$$\cos \frac{\pi}{3} = 1$$

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

$$r\left(\frac{\sqrt{r} + r}{r}\right)^2 - c\left(\frac{\sqrt{r} + r}{r}\right) = r(n-1)$$

$$\sqrt{r} \times \frac{\sqrt{r} + r}{r} \left(\frac{\sqrt{r} + r}{r} \right) = \frac{r-r}{r} = \frac{-1}{r}$$

$$f(a) = \frac{a+1}{n-1}$$

$$f(f(a)) = \frac{\frac{a+1}{n-1} + 1}{\frac{a+1}{n-1} - 1}$$

$$= \frac{1 \times a}{\frac{n-1}{r} - 1}$$

$$= \frac{a}{\frac{n-1}{r} - 1}$$

$$= \frac{a}{\frac{n-1}{r} - 1}$$

اگر $a+d=0$ ، $\Rightarrow f \circ f(n) = n$

$$a+d=0, \Rightarrow f \circ f(n) = n$$

$$Df = \mathbb{R} - \{1\}$$

$$g(a) = \sqrt{a^2 - 1}$$

$$f(g(a)) = f(\sqrt{a^2 - 1}) = (\sqrt{a^2 - 1})^2 - c(\sqrt{a^2 - 1}) = -r$$

$$Dg = (-\infty, -1] \cup [1, \infty)$$

$$Df = \mathbb{R}$$

$$g(a)^2 - c(g(a)) + r = 0$$

$$(g(a) - r)^2 = 0 \Rightarrow g(a) = r$$

$$\sqrt{a^2 - 1} = r$$

$$a = \pm \sqrt{a^2 - 1}$$

$$n+r=t \Rightarrow n=t-r \Rightarrow f(t) = (t-r)^2 - a(t-r) + 4$$

$$t^2 - 4t + r - at + 4 = t^2 - 11t + r_0$$

$$f(r) = r$$

$$f(-r) = 9 + 4r + r_0 = 4$$

$$4 + r = 11 + r_0$$

$$n+r=r \Rightarrow n=1$$

$$n+r=-r \Rightarrow n=-4$$

$$1-d+4 \leq r$$

$$4r + r_0 + 4 \leq 4$$

$$r_0 = r \cos^2 \alpha + d \cos \alpha$$

$$\times r$$

$$r \cos^2 \alpha + d \cos \alpha - r = 0$$

$$\cos^2 \alpha + d \cos \alpha - r = 0$$

$$\left(\cos \alpha + \frac{r}{d} \right) \left(\cos \alpha - \frac{r}{d} \right)$$

$$-\frac{r}{d} \times$$

$$\frac{r}{d}$$

$$2 \rightarrow \tan^2 \alpha = \frac{1}{\cos^2 \alpha} - 1 = \frac{r}{d}$$

$$\cos^2 \alpha + d \cos \alpha - r = 0$$

$$-\frac{r}{d}, \frac{r}{d}$$