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نام و نام خانوادگی: رتبه: پاسخنامه تشریحی تکلیف شماره ۵ کلاس: یازدهم دختر A

الف) $f(x) = \sqrt{\frac{x-1}{x}} - \frac{x}{x-1}$ $\xrightarrow{x \neq 0, x \neq 1} \frac{(x-1)^2 - x^2}{x(x-1)} \geq 0 \rightarrow \frac{-2x+1}{x(x-1)} \geq 0$ $\left| \begin{array}{ccc} 0 & \frac{1}{2} & 1 \\ + & - & + \end{array} \right|$
 $D_f = (-\infty, 0) \cup [\frac{1}{2}, 1)$

ب) $f(x) = \frac{\frac{1}{x+1} - \frac{2}{x}}{\frac{3}{x-1} + \frac{1}{x+2}}$ $\xrightarrow{x \neq -1, x \neq 0, x \neq 1, x \neq -2} \frac{\frac{1}{x+1} - \frac{2}{x}}{\frac{3}{x-1} + \frac{1}{x+2}} \neq 0 \rightarrow \frac{3x+4+x-1}{(x-1)(x+2)} \neq 0 \rightarrow x+3 \neq 0$
 $D_f = \mathbb{R} - \{-2, -\frac{3}{2}, -1, 0, 1\}$

الف) $f(x) = \sqrt{(\frac{1}{3})^x - 9} (32 - 4^x)$ $((\frac{1}{3})^x - 9)(32 - 4^x) \geq 0$ $\left| \begin{array}{ccc} -2 & \frac{5}{2} \\ + & - & + \end{array} \right|$
 $D_f = (-\infty, -2] \cup [\frac{5}{2}, +\infty)$

ب) $\sqrt{x-1} + \sqrt{y+1} = 3 \rightarrow \sqrt{y+1} = 3 - \sqrt{x-1} \rightarrow 3 - \sqrt{x-1} \geq 0 \rightarrow 3 \geq \sqrt{x-1}$
 $x \geq 1$ $\cap \rightarrow 1 \leq x \leq 17 \rightarrow x \leq 17$ $\left| \begin{array}{ccc} 1 & 17 \\ + & - & + \end{array} \right|$

$f(x) = \log_f \frac{(n^2 - n - 2)}{\sqrt{n^2 - 1} + 1}$ $\rightarrow n^2 - n - 2 > 0 \rightarrow (n-2)(n+1) > 0$ $\left| \begin{array}{ccc} -1 & 2 \\ + & - & + \end{array} \right|$
 $\rightarrow (n-1)(n+1) \geq 0$ $\left| \begin{array}{ccc} -1 & 1 \\ + & - & + \end{array} \right|$ $\cap \rightarrow D_f = (-\infty, -1) \cup (1, +\infty)$

$f(x) = \sqrt{2+ax-n^2} \rightarrow D_f = [-2, b]$

$-n^2+an+2 \geq 0 \rightarrow n^2-an-2 \leq 0$
 ضرب در -1 $\rightarrow$ جمع در n

$-2+b = a \rightarrow a = -2+b$
 $-2b = -2 \rightarrow b = 1$

$a+b = -\frac{1}{4} + \frac{3}{4} = \frac{1}{2}$

$f(x) = \begin{cases} 2x-2 & x \geq 1 \\ 2x+3 & x < 1 \end{cases}$

$g(x) = \sqrt{f(x)-x} \rightarrow f(x)-x \geq 0 \rightarrow f(x) \geq x$ $\left\{ \begin{array}{l} 2x-2 \geq x \rightarrow x \geq 1 \\ 2x+3 \geq x \rightarrow x \geq -3 \end{array} \right\} \cup$
 $D_f = [-3, +\infty)$

$$f(n) = \sqrt{n} - \epsilon n \rightarrow \sqrt{n(n-\epsilon)}$$

$$f\left(\frac{\sin \frac{\pi}{\sqrt{r}} + \cos \frac{\pi}{\sqrt{r}}}{\sqrt{\frac{r}{r}}}\right) \rightarrow r\left(\frac{\sqrt{r}}{r} + 1\right)\left(\frac{\sqrt{r}}{r} - 1\right) \rightarrow r\left(\frac{r}{r} - 1\right) = -1$$

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

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

$$f(f(a)) = a$$

$$a = ?$$

$$f\left(\frac{a+1}{a-1}\right) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = a \rightarrow \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = a \rightarrow \frac{a+1}{a-1} = a \rightarrow a = \frac{a+1}{a-1} \rightarrow a(a-1) = a+1 \rightarrow a^2 - a = a+1 \rightarrow a^2 - 2a - 1 = 0 \rightarrow a = 1 \pm \sqrt{2}$$

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$$f(n) = \sqrt{n} - \epsilon n$$

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

$$f(g(a)) = -\epsilon \rightarrow \sqrt{a^2 - 1} - \epsilon \sqrt{a^2 - 1} = -\epsilon \rightarrow \sqrt{a^2 - 1}(1 - \epsilon) = -\epsilon \rightarrow \sqrt{a^2 - 1} = \frac{-\epsilon}{1 - \epsilon} \rightarrow a^2 - 1 = \frac{\epsilon^2}{(1 - \epsilon)^2} \rightarrow a = \pm \sqrt{1 + \frac{\epsilon^2}{(1 - \epsilon)^2}}$$

$$a = ?$$

$$g(a) = r \rightarrow \sqrt{a^2 - 1} = r \rightarrow a^2 - 1 = r^2 \rightarrow a = \pm \sqrt{r^2 + 1}$$

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$$f(n+r) = \sqrt{n} - \epsilon n + r \rightarrow n+r = f \rightarrow n = f-r \rightarrow 1-\omega+y = r$$

$$f(r) \times f(-r) = ?$$

$$r \times \sqrt{r} = 1 \times r$$

$$n+r = -r \rightarrow n = -2r \rightarrow r^2 + r + r = \sqrt{r}$$

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$$f(r \cos x + \omega \cos x) = \tan x \rightarrow r \cos x + \omega \cos x - \frac{1}{\sqrt{r}} = 0$$

$$f\left(\frac{r}{\sqrt{r}}\right) = ? \rightarrow r$$

$$\frac{-\omega \pm \sqrt{\omega^2 + \omega^2}}{\omega} = \frac{-\omega \pm \omega\sqrt{2}}{\omega} = -1 \pm \sqrt{2}$$

$$\frac{1}{\sqrt{r}} + \frac{\sin x}{\sqrt{r}} = 1$$

$$\tan x = \frac{\sin x}{\cos x}$$

$$\frac{r}{\sqrt{r}} = \frac{1}{\sqrt{r}}$$

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