

نام و نام خانوادگی جیبانه پاسخنامه تشریحی تکلیف شماره کلاس پایه نهم ۱۹۱۵

الف) $f(x) = \sqrt{\frac{x-1}{x} - \frac{x}{x-1}} \rightarrow \frac{x-1}{x} - \frac{x}{x-1} \geq 0 \rightarrow \frac{1-2x}{x(x-1)} \geq 0 \rightarrow \frac{1}{x} - \frac{2}{x-1} \geq 0 \rightarrow D_f = (-\infty, 0) \cup [\frac{1}{2}, +\infty)$

ب) $f(x) = \frac{\frac{1}{x+1} - \frac{2}{x}}{\frac{3}{x-1} + \frac{1}{x+2}} = \frac{\frac{-2-x}{x(x+1)}}{\frac{x+5}{x^2+x-2}} \rightarrow x = -1, 0$
 $\rightarrow x = -\frac{5}{2} \rightarrow D_f = \mathbb{R} - \{0, -1, -\frac{5}{2}, 1, -\frac{5}{2}\}$
 $\rightarrow x = -2, 1$

الف) $f(x) = \sqrt{(\frac{1}{3}x - 9)(32 - x^2)} \rightarrow (\frac{1}{3}x - 9)(32 - x^2) \geq 0 \rightarrow \frac{-2}{3} \leq x \leq 2, 5 \rightarrow D_f = (-\infty, -\frac{2}{3}] \cup [2, 5, +\infty)$

ب) $f(x) = \sqrt{x-1} + \sqrt{y+1} = 3$

$\sqrt{y+1} = 3 - \sqrt{x-1} \rightarrow 3 - \sqrt{x-1} \geq 0 \rightarrow \sqrt{x-1} \leq 3 \rightarrow D_f = \mathbb{Q} \cap \mathbb{D} = [1, 10]$
 $\textcircled{1} \sqrt{x-1} \geq 0 \rightarrow x \geq 1$
 $\textcircled{2} x-1 \geq 0 \rightarrow x \geq 1$

$f(x) = \frac{\log_{\frac{x^2-x-2}{x^2-x-2}}}{\sqrt{x^2-1} + 1} \rightarrow \frac{-1}{x^2-x-2} \geq 0 \rightarrow \frac{-1}{x^2-x-2} \geq 0$
 $\rightarrow x^2-x-2 \leq 0 \rightarrow x \geq 1, x \leq -1$

$D_f = \mathbb{Q} \cap \mathbb{D} = (-\infty, -1) \cup (2, +\infty)$

$3+ax-x^2 \geq 0$

$x = -2 \rightarrow 3-2a-4=0$
 $a = -\frac{1}{2}$

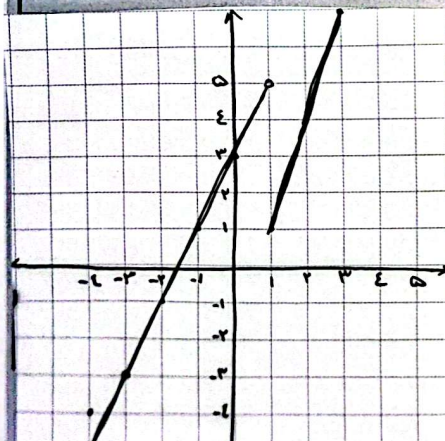
$3 - \frac{1}{2}x - x^2 = 0 \rightarrow a+b = \frac{3}{2} - \frac{1}{2} = \frac{2}{2} = 1$

$x = -2, \frac{3}{2} \rightarrow b = \frac{3}{2}$

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

$g(x) = \sqrt{f(x)-x} \rightarrow f(x)-x \geq 0 \rightarrow f(x) \geq x$

$D_f = [-3, +\infty)$



$rf(a) = f(-r) + a$ $r(a+1)(a+r) = ra + r(-r) + a$ $18a + 18 = ra - r$ $10a = -18$ $a = -1.8 = -\frac{9}{5}$	6
$f(x) = \sqrt{x} + \frac{1}{\sqrt{x}} + r \rightarrow f(r-\sqrt{r}) + f(r+\sqrt{r}) = ?$ $\sqrt{r-\sqrt{r}} + \frac{1}{\sqrt{r-\sqrt{r}}} + r + \sqrt{r+\sqrt{r}} + \frac{1}{\sqrt{r+\sqrt{r}}} + r \xrightarrow{\sqrt{r-\sqrt{r}}} r + r\sqrt{r+\sqrt{r}} + r\sqrt{r-\sqrt{r}} = r + 1\sqrt{4}$ $\frac{1}{\sqrt{r-\sqrt{r}}} \times \frac{\sqrt{r+\sqrt{r}}}{\sqrt{r+\sqrt{r}}} = \frac{\sqrt{r+\sqrt{r}}}{1} = \sqrt{r+\sqrt{r}}$ $(\sqrt{r+\sqrt{r}} + \sqrt{r-\sqrt{r}}) \rightarrow A \rightarrow A^2 = 4$	1.0 7
$\begin{cases} rf(r) - rf(-r) = rnr - n \\ rf(-r) - rf(r) = rnr + n \end{cases} \rightarrow \begin{cases} rf(r) - rf(-r) = rnr - n \\ rf(-r) - rf(r) = rnr + n \end{cases} \xrightarrow{+} -2f(n) = rnr + n \rightarrow f(n) = \frac{rnr + n}{-2}$ $f(n) = -\frac{rnr + n}{2}$	8
$-rx^2 f(x+r) + (x+r)f(x) = rx^2 - mx + r^2m - 1$ $\begin{cases} x = -r \rightarrow rf(0) = 18 + 2m \\ x = 0 \rightarrow rf(0) = r^2m - 1 \end{cases} \xrightarrow{rf(0)} \begin{cases} 18 + 2m = 9m - r \\ r^2m - 1 = -r + 9m \end{cases}$ $18 + 2m = 9m - r \rightarrow r = 7m - 18 \rightarrow m = \frac{18}{8} = \frac{9}{4}$ $rf(0) = r\left(\frac{9}{4}\right) - \frac{r}{4} = \frac{r \cdot 9}{4} - \frac{r}{4} \rightarrow f(0) = \frac{\frac{r \cdot 9}{4} - \frac{r}{4}}{\frac{r}{4}} = \frac{r \cdot 9 - r}{r} = \frac{r \cdot 8}{r} = 8$	9
$f(x) + f\left(\frac{1}{x}\right) = \frac{rx^2 - 12x + r}{x} \xrightarrow{f(-1)=?} x = -1 : f(-1) + f(-1) = \frac{r + 12 + r}{-1} = -18 \rightarrow rf(-1) = -9$ $f(-1) = -\frac{18}{2} = -9$	10