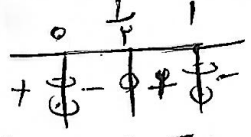
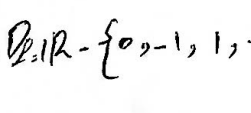
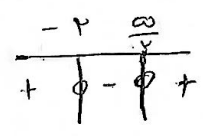
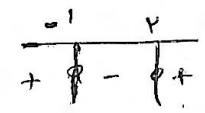
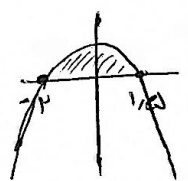


الف) $\sqrt{\frac{(a-1)^2 - a^2}{a(a-1)}} = \sqrt{\frac{1-2a}{a(a-1)}} \rightarrow \frac{1-2a}{a(a-1)} \geq 0$  $\Rightarrow D_f = (-\infty, 0) \cup [\frac{1}{2}, 1)$ ب) $\frac{-a-2}{a(a+1)} \geq 0$ $\Rightarrow \begin{cases} a(a+1) \neq 0 \\ \Rightarrow a \neq \{0, -1\} \\ 3a+2 \neq 0 \Rightarrow a \neq \{-\frac{2}{3}\} \\ a^2+a-2 \neq 0 \Rightarrow a \neq \{1, -2\} \end{cases}$  $\Rightarrow D_f = (-\infty, -2) \cup (-1, -\frac{1}{3})$	۱
الف) $((\frac{1}{a})^u - 9)(32 - 5^u) \geq 0$  $(\frac{1}{a})^u - 9 = 0 \Rightarrow a = -2$ $32 - 5^u = 0 \Rightarrow u = \frac{5}{2}$ $\Rightarrow D_f = (-\infty, -2] \cup [\frac{5}{2}, +\infty)$	۲
ب) $\sqrt{g+1} = 3 - \sqrt[3]{a-1} \Rightarrow a-1 \geq 0 \Rightarrow a \geq 1$ $\rightarrow 3 - \sqrt[3]{a-1} \geq 0 \Rightarrow 3 \geq \sqrt[3]{a-1} \Rightarrow 27 \geq a-1 \Rightarrow 28 \geq a$ $\Rightarrow D_f = [1, 28]$	۳
$\log_f (a^2 - a - 2) \geq 0 \Rightarrow \begin{cases} a^2 - a - 2 > 0 \\ (a-2)(a+1) > 0 \end{cases}$  $\sqrt{a^2-1} \rightarrow a^2-1 \geq 0 \Rightarrow a^2 \geq 1 \rightarrow \begin{cases} a \geq 1 \\ a \leq -1 \end{cases}$ $\rightarrow (-\infty, -1] \cup [1, +\infty)$ (II) $\sqrt{a^2-1} + 1 \neq 0$ $\Rightarrow I \cap II \rightarrow D_f = (-\infty, -1) \cup (2, +\infty)$	۴
جوابت زیر را یک سری امتحان در است و در نقاط $\{b\}, \{-2\}$ بررسی شود $3 + a - a^2 = 0 \xrightarrow{a=-2} 3 - 2a - 1 = 0 \Rightarrow -2a - 1 = 0 \rightarrow -2a = 1 \rightarrow a = -\frac{1}{2}$ $\Rightarrow -a^2 - \frac{1}{2}a + 3 \rightarrow a = \frac{\frac{1}{2} \pm \sqrt{\frac{1}{4} + 12}}{-2} \Rightarrow a = \{-2, 1, 5\}$ $\Rightarrow D_f = [-2, 1, 5] \Rightarrow b = 1, 5 \Rightarrow a+b = -\frac{1}{2} + 1, 5 = 1, 5$ 	۵
$a \geq 1 \rightarrow g(a) = \sqrt{3a-2-a} = \sqrt{2a-2} \Rightarrow 2a-2 \geq 0$ $2a \geq 2 \Rightarrow a \geq 1$ $a < 1 \rightarrow g(a) = \sqrt{3a+3-a} = \sqrt{2a+3} \Rightarrow 2a+3 \geq 0$ $a \geq -\frac{3}{2} \Rightarrow -\frac{3}{2} \leq a < 1$ $\Rightarrow D_f = [-\frac{3}{2}, +\infty)$	۶

$$-1 < 1 \rightarrow f(-1) = 3a - 1$$

$$\omega > 1 \rightarrow 2f(\omega) = 2(a+1)(\omega+1) \Rightarrow 2f(\omega) = 15a+11 \Rightarrow 15a+11 = 3a-1$$

$$2f(\omega) = f(\omega+1) + a \quad f(-1) = 3a-1 \rightarrow 2f(\omega) = 3a-1 \quad 10a = -11$$

$$a = -1, 11$$

$$(1-\sqrt{x})(1+\sqrt{x}) = 1 \quad \text{حيث } 1-\sqrt{x}, 1+\sqrt{x} \text{ متبادلتان}$$

$$1-\sqrt{x} = t \Rightarrow f(1-\sqrt{x}) + f(1+\sqrt{x}) = f(t) + f\left(\frac{1}{t}\right) \quad f(t) = \sqrt{t} + \frac{1}{\sqrt{t}} + 1$$

$$\Rightarrow f(t) = f\left(\frac{1}{t}\right) \Rightarrow f(t) + f\left(\frac{1}{t}\right) = 2f(t) \quad f\left(\frac{1}{t}\right) = \sqrt{\frac{1}{t}} + \sqrt{t} + 1$$

$$2f(t) = 2\left(\sqrt{1-\sqrt{x}} + \frac{1}{\sqrt{1-\sqrt{x}}} + 1\right) = 2(\sqrt{1-\sqrt{x}} + \sqrt{1+\sqrt{x}} + 1) = 2(\sqrt{4} + 1) = 2\sqrt{4} + 2$$

$$\frac{1}{\sqrt{1-\sqrt{x}}} = \sqrt{1+\sqrt{x}} \quad Q: 1-\sqrt{x} + 1+\sqrt{x} + 2\sqrt{1-\sqrt{x}} = 4 \Rightarrow Q = \sqrt{4}$$

$$2f(a) - 2f(-a) = f(a)^2 - a \quad 2f(a) - 4f(-a) = 11a^2 - 2a$$

$$2f(-a) - 2f(a) = f(a)^2 + a \quad 4f(-a) - 4f(a) = 11a^2 + 2a$$

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

$$-2f(a) = 2a^2 + a \Rightarrow f(a) = \frac{2a^2 + a}{-2} = -a^2 - \frac{a}{2}$$

$$a=0 \rightarrow 2f(0) = 2m-1 \xrightarrow{\times 2} 4f(0) = 4m-2$$

$$a=-1 \rightarrow 4f(0) = 1\omega + \omega m$$

$$\Rightarrow 4m-2 = 1\omega + \omega m$$

$$f_m = 11$$

$$m = \frac{11}{1} \quad \checkmark$$

$$\Rightarrow f(0) = \frac{2m-1}{2} \xrightarrow{m=\frac{11}{1}} f(0) = \frac{11-1}{2} = 5, 11 \quad \checkmark$$

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

$$2f(-1) = -11 \Rightarrow f(-1) = -9 \quad \checkmark$$