

نام و نام خانوادگی <u>علی جعفریان</u> پاسخنامه تشریحی تکلیف شماره <u>۵۷</u> کلاس <u>پسر اول</u>	
$x f(x) \geq 0 \quad \left. \begin{array}{l} \text{if } x = (0, 2) \\ \text{if } x = (-5, -0) \end{array} \right\} \Rightarrow f(x) < 0 \Rightarrow D_f = [-5, 0] \cup [2, 5]$	۱
$\begin{array}{l} f(x) \neq 0 \\ \frac{-x}{f(x)} \geq 0 \end{array} \Rightarrow \left[\begin{array}{l} f(x) > 0, x \leq 0 \\ f(x) < 0, x \geq 0 \end{array} \right] \Rightarrow D_f = (-\infty, 0) \cup (0, 2)$	۲
$x = -2 \rightarrow \underbrace{f(2) - f(2)}_{-f(2)} = \underbrace{2 - 2x^2}_2 \Rightarrow f(2) = -2 \Rightarrow f(-2) \neq \frac{12}{2+2+2} \Rightarrow f(-2) = 1$	۳
$\underbrace{f(f(0))}_V + \underbrace{f(f(1))}_V$ $V + V = 9$	۴
$f(x-1) = a(x-1)^2 - b(x-1)^2 + 2 = ax^2 - 2ax + a - bx + b + 2$ $\cancel{ax^2} - 2ax + a - \cancel{bx} + b + \cancel{2} - \cancel{ax^2} + \cancel{bx} - \cancel{2} = -2ax + a + b = 2x + 2$ $\underline{a = 3} \quad \underline{b = -1} \quad a - b = 4$	۵

$(x+v)^r = x^r + r x^{r-1} v + \dots$ $\Rightarrow f_{(\sqrt{r}-v)} = \frac{(x+v)^r + 1}{(x+v)^r + v} = \frac{(\sqrt{r})^r + 1}{(\sqrt{r})^r + v} = \frac{r}{r} = \frac{v}{r}$	6
$x - \frac{1}{x} = \frac{x^r - 1}{x} \quad f\left(\frac{x^r - 1}{x}\right) = \frac{x^{r+1}}{x^r}$ $\frac{x^{r+1}}{x^r} \times \frac{x^r}{x^r - 1} = \frac{x^{r+1}}{x^r - x} \Rightarrow f(x) = \frac{x^{r+1}}{x^r - x} \Rightarrow f(-v) = \frac{1^r}{-r} = -\frac{1}{r}$	7
$\frac{f}{g} = D_f \cap D_g - \{g(x) = 0\} \quad \begin{matrix} D_f = \{v, 1, 0, v\} \\ D_g = [-r, r] \end{matrix} \Rightarrow \frac{f}{g} = \{v, 1, r\}$ $\frac{g}{f} = D_f \cap D_g - \{f(x) = 0\} = \{v, 1\}$	8
${}^v f(x) = \{(v, v), (r, 1), (-v, v), (1, -v)\}$ ${}^v f(x) + 1 = \{(v, v), (r, 2), (-v, v), (1, -1)\}$ ${}^v f(x) + 1 = \{(v, v), (r, v+1), (-v, 1), (1, 1)\}$ $f(x) = \{(1, 1), (1, v), (-v, v), (v, -v)\}$	9
$f-g = \{(1, v), (v, v), (r, v)\}$ $\frac{v}{g} = g \neq 0 \Rightarrow \{(v, -v), (v, v)\}$	10