

۱۵,۱۵

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره .../... کلاس .../... پرستار	
$x f(x) \geq 0$ $x \geq 0 \quad f(x) \leq 0 \rightarrow [2, 5]$ $x \leq 0 \quad f(x) \geq 0 \rightarrow [-5, 0]$ $D_f = [-5, 0] \cup [2, 5]$	۱
$f(x) \neq 0$ $\frac{-x}{f(x)} \geq 0$ $x \rightarrow -3, 0, 2, 5$ $\frac{-x}{f(x)} \geq 0$ $x \rightarrow -3, 0, 2, 5$ $D_f = (-3, 0) \cup (2, 5)$	۲
$f(x) - x f(x) = -4$ $f(x) = 2$ $f(-x) - f = f + g + 4$ $f(x) = 1$	۳
$f(f(b)) + f(f(c)) = f(1) + f(8) = 1 + 8 = 9$	۴
$f(x-1) - f(x) = 4x + 2$ $a(x-1) - b(x-1) = 4x + 2 \Rightarrow ax - a - bx + b = 4x + 2$ $-x a = 4 \Rightarrow a = -4$ $a + b = 2 \Rightarrow b = 6$ $a \cdot b = -24 \Rightarrow -1$	۵

$\frac{(\sqrt{c}-x)^2 + 4(\sqrt{c}-x) + 0}{(\sqrt{c}-x)^2 + 4(\sqrt{c}-x) + 1} = \frac{1+4-\cancel{4\sqrt{c}}+\cancel{4\sqrt{c}}-1+0}{1+4-\cancel{4\sqrt{c}}+\cancel{4\sqrt{c}}-1+1} = \frac{4}{4}$	6
$x - \frac{1}{x} = -2 \Rightarrow \frac{x^2 - 1}{x} = -2 \Rightarrow x^2 + 2x - 1 = 0 \Rightarrow x = \frac{-2 \pm \sqrt{4 + 4}}{2} = \frac{-2 \pm \sqrt{8}}{2} = \frac{-2 \pm 2\sqrt{2}}{2} = -1 \pm \sqrt{2}$ $f(-\sqrt{2}) = \frac{(0/2)^2 + 1}{e/25^2} = \frac{1/0.01}{0.09} \approx 111.1$ $f(-1) = \frac{(-1/2)^2 + 1}{(e/25)^2} = \frac{1.25}{1.01} \approx 1.24$	7
$g(x) = \sqrt{9-x^2} \Rightarrow D_f(g) = [c, 3] \quad 9-x^2 \geq 0 \Rightarrow 9 \geq x^2 \Rightarrow -3 \leq x \leq 3$ $g(x) = \{(2, \sqrt{5}), (1, \sqrt{8}), (0, 3)\}$ ا) $\{(2, \frac{\sqrt{5}}{2}), (1, \frac{\sqrt{8}}{\sqrt{2}}), (0, \frac{3}{\sqrt{2}})\}$ ب) $\{(1, \frac{\sqrt{8}}{\sqrt{2}}), (0, \frac{3}{\sqrt{2}})\}$	8
ا) $f(x) = \{(2, 2), (2, 1), (-5, 4), (1, -4)\}$ $f(g) + 1 = \{(2, 2), (2, 1), (-5, 4), (1, -4)\}$ ب) $f(g) + 1 = \{(2, 4), (2, 5), (-5, 4), (1, 3)\}$ $f(g) = \{(2, 1), (\frac{3}{2}, 4), (\frac{-5}{2}, 2), (\frac{1}{2}, -1)\}$	9
ا) $f \circ g \rightarrow \{(1, 4), (2, 2), (2, 1)\}$ ب) $\frac{f}{g} \rightarrow \{(2, 4), (2, \frac{1}{2})\}$	10