

نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره .../... کلاس .../... پرستار ...

$$x f(x) \geq 0$$

$$x \geq 0 \quad f(x) \geq 0 \rightarrow [2, 5]$$

$$x \leq 0 \quad f(x) \leq 0 \rightarrow [-5, 0]$$

$$D_f = [-5, 0] \cup [2, 5]$$

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$$f(x) \neq 0$$

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

$$f(x) \rightarrow -3, 0, 2, 5$$

$$\frac{-3 \quad 0 \quad 2 \quad 5}{- \frac{1}{3} + 0 + \frac{1}{2} + \frac{1}{5} = \frac{1}{30}}$$

$$D_f = (-3, 0) \cup (2, 5)$$

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$$f(x) - x f(x) = 4$$

$$f(x) = 2$$

$$f(-x) - x = x + y + z$$

$$\boxed{f(-x) = 18}$$

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$$f(f(b)) + f(f(c)) = f(1) + f(8) = 1 + 8 = 9$$

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$$f(x-1) - f(x) = 4x + 2$$

$$a(x-1) - b(x-1) - x - ax - bx = 4x + 2 \Rightarrow ax + a - bx - b - x - ax - bx = 4x + 2$$

$$-2a = 4 \Rightarrow \boxed{a = -2}$$

$$a + b = 2 \Rightarrow \boxed{b = 4}$$

$$a \cdot b = -8 \Rightarrow \boxed{-1}$$

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$\frac{(\sqrt{c}-x)^2 + 4(\sqrt{c}-x) + 0}{(\sqrt{c}-x)^2 + 4(\sqrt{c}-x) + 1} = \frac{1+4-\cancel{4\sqrt{c}}+\cancel{4\sqrt{c}}-4+0}{1+4-\cancel{4\sqrt{c}}+\cancel{4\sqrt{c}}-4+1} = \frac{1}{1}$	6
$x - \frac{1}{x} = -2 \Rightarrow \frac{x^2 - 1}{x} = -2 \Rightarrow x^2 + 2x - 1 = 0 \Rightarrow x = \frac{-2 \pm \sqrt{4 + 4}}{2} = \frac{-2 \pm \sqrt{8}}{2} = \frac{-2 \pm 2\sqrt{2}}{2} = -1 \pm \sqrt{2}$ $f(-\sqrt{2}) = \frac{(0/2)^2 + 1}{e/25^2} = \frac{1/0.01}{0.09} \approx 111.1$ $f(-1) = \frac{(-1/2)^2 + 1}{(e/25)^2} = \frac{1.25}{1.01} \approx 123.7$	7
$g(x) = \sqrt{9-x^2} \Rightarrow D_f(g) = [-3, 3] \quad 9-x^2 \geq 0 \Rightarrow 9 \geq x^2 \Rightarrow -3 \leq x \leq 3$ $g(x) = \{(2, \sqrt{5}), (1, \sqrt{8}), (0, 3)\}$ 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) $f(x) = \{(2, 2), (2, 1), (-5, 4), (1, -4)\}$ ب) $f(x)+1 = \{(2, 3), (2, 2), (-5, 5), (1, -3)\}$ ج) $f(x)+1 = \{(2, 3), (2, 2), (-5, 5), (1, -3)\}$ د) $f(x) = \{(2, 1), (\frac{3}{2}, 4), (-\frac{5}{2}, 2), (\frac{1}{2}, -2)\}$	9
ا) $f \circ g \rightarrow \{(1, 4), (2, 2), (2, 1)\}$ ب) $\frac{f}{g} \rightarrow \{(2, 4), (2, \frac{1}{2})\}$	10