

19, 15

نام و نام خانوادگی: ... آریضیا / زری ... پاسخنامه تشریحی تکلیف شماره ... ۷ ... کلاس ... (۸۸) ...

1

$$y = \sqrt{x f(x)} \quad Df = [-5, -1] \cup [2, 5]$$

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

$$Df = [-5, -1] \cup [2, 5]$$

2

$$y = \sqrt{\frac{-x}{f(x)}} \quad Df = (-3, 0) \cup (0, 2)$$

$$\frac{-x}{f(x)} \geq 0 \text{ و } f(x) \neq 0$$

عدد صحیح

1, 1, 5

3

$$f(x) - 2f(2) = x^2 - 3x + 4$$

$$x = 2 \Rightarrow f(2) - 2f(2) = 4 - 6 + 4 = 2 \Rightarrow f(2) = -2 \Rightarrow -2f(2) = 4$$

$$x = -2 \Rightarrow f(-2) + 4 = 4 + 6 + 4 = 14 \Rightarrow f(-2) = 10$$

5

4

$$f(f(5)) + f(f(1))$$

$$f(x) = \begin{cases} x - \sqrt{x+4} & ; x > 3 \\ 2x + 3 & ; x \leq 3 \end{cases}$$

$$x = 2 \Rightarrow 4 + 3 = 7 \Rightarrow f(2) + 2 = 7 + 2 = 9$$

$$x = 1 \Rightarrow 2 + 3 = 5$$

$$x = 5 \Rightarrow 5 - \sqrt{9} = 2$$

$$\Rightarrow f(f(5)) + f(f(1)) = f(2) + 5 = 9 + 5 = 14$$

5

5

$$f(n-1) - f(n) = 9n + 2$$

$$a(n-1)^2 - b(n-1) + 2 - an^2 + bn - 2 = 9n + 2$$

$$an^2 + a - 2an^2 - bn + b + 2 - an^2 + bn - 2 = 9n + 2$$

$$a = -3$$

$$b = 5$$

$$a - b = -3 - 5 = -8$$

5

$$f(\sqrt{3}-2) = \frac{3 - 2\sqrt{3} + 4 - 1 + 4}{3 - 2\sqrt{3} + 4 - 1 + 3} = \boxed{\frac{10-2\sqrt{3}}{9-2\sqrt{3}}}$$

$$(\sqrt{3}-2)^2 = 3 - 4\sqrt{3} + 4 = 7 - 4\sqrt{3}$$

$$2(\sqrt{3}-2) = 2\sqrt{3} - 4$$

$$f\left(n - \frac{1}{n}\right) = \frac{n^2 + 1}{n^2} = \frac{n^2 + \frac{1}{n^2}}{n^2} = n^2 + \frac{1}{n^2}$$

$$\Rightarrow \left(n - \frac{1}{n}\right)^2 - 2 = f\left(n - \frac{1}{n}\right) \Rightarrow n - \frac{1}{n} = -2$$

$$f(-2) = (-2)^2 + 2 = \boxed{6}$$

→

$$f(n) = n^2 + 2$$

$$\frac{f}{g} = \left\{ \left(2, \frac{1}{2}\right), \left(0, \frac{2}{3}\right), \left(\sqrt{1}, \frac{1}{\sqrt{1}}\right) \right\}$$

$$\frac{g}{f} = \left\{ \left(2, \frac{3}{2}\right), \left(0, \frac{\sqrt{5}}{2}\right), \left(\sqrt{1}, \sqrt{1}\right) \right\}$$

$$الف) 2f(x) = \left\{ (2, 2), (3, 1), (-5, 4), (1, -2) \right\}$$

$$ب) f(x) + 1 = \left\{ (2, 2), (3, 5), (-5, 3), (1, -1) \right\}$$

$$ج) 3f^2(x) + 1 = \left\{ (2, 4), (3, 9), (-5, 13), (1, 13) \right\}$$

$$د) f(2x) = \left\{ (1, 1), \left(\frac{3}{2}, 4\right), \left(-\frac{5}{2}, 2\right), \left(\frac{1}{2}, -2\right) \right\}$$

$$الف) = f - g = \left\{ (2, 2), (1, 4), (3, 2) \right\}$$

$$ب) \frac{2f}{g} = \left\{ (2, 6), \left(1, \frac{4}{3}\right), (3, -2) \right\}$$