

کلاس: ۲۰۲۰

پاسخنامه تکلیف شماره: ۷

نام و نام خانوادگی: جلدیانی

سوال ۱: $x f(x) > 0 \rightarrow x > 0 \text{ و } f(x) > 0 \quad \textcircled{1} \quad x < 0 \text{ و } f(x) < 0$

$$D_f = [2, \infty] \quad \left\{ \begin{array}{l} \text{بازه } [2, \infty] \leftarrow [0, 2] \text{ زیرا } x \text{ پس } f(x) < 0 \\ x f(x) = 0 \leftarrow f(x) = 0 \text{ و } x = 2 \leftarrow \\ f(x) > 0 \leftarrow [2, \infty] \leftarrow \end{array} \right.$$

$$D_f = [-\infty, -5] \quad \left\{ \begin{array}{l} \text{بازه } [-\infty, -5] \leftarrow [-5, 0] \\ x f(x) = 0 \leftarrow f(x) = 0 \text{ و } x = -5 \leftarrow \\ f(x) < 0 \leftarrow [-\infty, -5] \leftarrow \end{array} \right.$$

$$\Rightarrow D_f = [-\infty, -5] \cup [2, \infty]$$

سوال ۲: $y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} > 0 \rightarrow \textcircled{1} -x > 0 \text{ و } f(x) > 0 \quad \textcircled{2} -x < 0 \text{ و } f(x) < 0 \text{ و } f(x) \neq 0$
 $\Rightarrow x \neq -3, 0, 2, 5$

$$[-4, -3) \rightarrow f(x) < 0 \quad / \quad (-3, 0) \rightarrow f(x) > 0 \quad / \quad (0, 2) \rightarrow f(x) < 0 \quad / \quad (2, 5) \rightarrow f(x) < 0$$

$$\begin{array}{l} \text{داده } \rightarrow -x > 0 \text{ و } f(x) > 0 \rightarrow (-3, 0) \\ \text{فرد } \rightarrow x > 0 \text{ و } f(x) < 0 \rightarrow (0, 2) \end{array} \left\{ \begin{array}{l} D_f = (-3, 0) \cup (0, 2) \rightarrow \boxed{(-2, 1)} \end{array} \right.$$

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

$$-f(x) = -f \rightarrow f(x) = f \rightarrow f(x) - 1 = x^2 - 3x + f$$

$$f(-1) - 1 = f + f + f$$

$$f(x) = f + f + f + 1 \Rightarrow f(x) = 3f + 1$$

$$f(1) \rightarrow r_n + r \Rightarrow r + r = d \rightarrow f(d) = n - \sqrt{n+r} = r$$

(K) ch

$$f(d) = r \rightarrow f(r) \rightarrow r_n + r = v \Rightarrow v + r = 9$$

$$f(n) = an^r - bn + r$$

(a) ch

$$f(n-1) - f(n) = 9n + r \rightarrow f(n-1) = a(n-1)^r - b(n-1) + r$$

$$f(n-1) = an^r - ran + a - bn + b + r$$

$$f(n-1) - f(n) = (an^r - ran + a - bn + b + r) - (an^r - bn + r) = -ran + a + b$$

UB

$$-ran + a + b = 9n + r \rightarrow \underline{-ra} = 9n \rightarrow -ra = 9 \rightarrow a = -r, b = d$$

$$\Rightarrow a - b = -r - (+d) = -1$$

(K) ch

$$f(n) = (\sqrt{r} - r)^r + r(\sqrt{r} - r) + d \rightarrow (\sqrt{r} - r)^r + r(\sqrt{r} - r) = y$$

$$(\sqrt{r} - r)^r + r(\sqrt{r} - r) + v$$

$$\Rightarrow y = (r - \sqrt{r} + r) + r\sqrt{r} - 1 \Rightarrow y = -1 \rightarrow f(n) = \frac{-1+d}{-1+v} = \frac{r}{9} = \frac{r}{r}$$

$$\frac{n^r+1}{n^r} = \frac{n^r}{n^r} + \frac{1}{n^r} \Rightarrow n^r + \frac{1}{n^r}$$

(K) ch

$$\left. \begin{aligned} n^r + \frac{1}{n^r} &= (n - \frac{1}{n})^r + r \\ (n - \frac{1}{n})^r &= n^r - r + \frac{1}{n^r} \end{aligned} \right\}$$

$$f(n - \frac{1}{n}) = (n - \frac{1}{n})^r + r \rightarrow f(n) = (n^r + r) \rightarrow f(-r) = (-r)^r + r = 11$$

الف) $\frac{f}{g} \rightarrow D_f = \{2, 1, 0, 1, 0\}$ $D_g = 9 - x^2 \neq 0$ سوال 1
 $9 \neq x^2 \rightarrow -3 < x < 3 \rightarrow [-3, 3]$ $0 \notin D_g$

$$\{2, 1, 0, 1, 0\} \cap [-3, 3] = \{2, 1, 0\}$$

$$\frac{f}{g}(1) = \frac{-4}{2\sqrt{2}} = -\frac{\sqrt{2}}{1} \quad \frac{f}{g}(0) = \frac{1}{3} \quad \frac{f}{g}(2) = \frac{0}{\sqrt{5}} = 0$$

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

ب) $f(x) \neq 0 \rightarrow f(x) = 0$ سوال 2
 $\frac{g}{f}(1) = \frac{\sqrt{2}}{-2} \quad \frac{g}{f}(0) = \frac{3}{2}$

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

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

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

ج) $3f^2(x) + 1 = \{(2, 13), (3, 19), (-5, 13), (1, 13)\}$

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

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

ب) $\frac{2f}{g} \rightarrow 2f = \{(2, 4), (1, 4), (1, 1), (3, 2), (5, 4)\}$

$$\frac{2f}{g} = \{(2, 4), (1, 4), (3, 2)\}$$

تعريف نسبه