

شماره ۱۱ - دوم سوال - ۱۱

$$\begin{array}{ccccccc} -4 & -1 & 0 & 2 & 1 \\ \hline -1 & + & 0 & - & + & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 \end{array} \Rightarrow D_f = [-1, 0] \cup [2, 1]$$

سوال ۱۱

$$\frac{-x}{f(x)} \geq 0, f(x) \neq 0 \Rightarrow \frac{x}{f(x)} \leq 0$$

سوال ۱۲

$$\begin{array}{ccccccc} -4 & -3 & 0 & 2 & 1 \\ \hline + & 0 & - & 0 & + & 0 \\ \hline 0 & 0 & 0 & 0 & 0 & 0 \end{array} \Rightarrow D_f = (-3, 0) \cup (0, 2)$$

$\Rightarrow$  اعداد صحیح ۱ و ۲ و ۳

$$\sqrt{x} \rightarrow x = 2$$

سوال ۱۳

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

$$\Rightarrow f(x) = x^2 - 3x + 4 - 4 = x^2 - 3x \Rightarrow f(-2) = 4 - (-6) = 10$$

$$f(f(a)) + f(f(1)) = f(2) + f(1)$$

سوال ۱۴

$$\frac{a - \sqrt{9}}{a - 4} = 2 \Rightarrow a - \sqrt{9} = 2(a - 4) \Rightarrow a - 3 = 2a - 8 \Rightarrow a = 5$$

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

سوال ۱۵

$$ax^2 + a - 2ax - bx + b + 2 - ax^2 + bx - 2 = 4x + 2$$

$$a - 2ax + b - 4x + 2 = 0 \Rightarrow -2ax - 4x = 0, a + b - 2 = 0$$

$$\Rightarrow a = -2$$

$$\Rightarrow a + b = 2 \Rightarrow b = 4$$

$$\Rightarrow a - b = -2 - 4 = -6$$



$$f(x) = \frac{(x+2)+1}{(x+2)^2+3} = \frac{(\sqrt{3}-2+2)+1}{(\sqrt{3}-2+2)^2+3} = \frac{3+1}{3+3} = \frac{4}{6} = \frac{2}{3}$$

سوال 16

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

سوال 17

$$\Rightarrow f(-3) = (-3)^2 + 2 = 11$$

سوال 18

$$\text{حل) } D_{g(x)} = 9 - x^2 \geq 0 \Rightarrow 9 \geq x^2 \Rightarrow D_{g(x)} = [-3, 3]$$

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

$$\frac{f}{g} = \left\{ \left(2, \frac{0}{\sqrt{2}}\right), \left(1, \frac{-4}{\sqrt{2}}\right), \left(0, \frac{2}{3}\right) \right\} = \left\{ \left(2, 0\right), \left(1, -\frac{4}{\sqrt{2}}\right), \left(0, \frac{2}{3}\right) \right\}$$

$$\frac{g}{f} = \left\{ \left(2, \frac{\sqrt{2}}{0}\right), \left(1, \frac{\sqrt{2}}{-4}\right), \left(0, \frac{3}{2}\right) \right\} = \left\{ \left(1, \frac{\sqrt{2}}{-4}\right), \left(0, \frac{3}{2}\right) \right\}$$

$$\text{حل) } 2f(x) = \{(2, 2), (2, 1), (-2, 4), (1, -4)\}$$

سوال 19

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

$$3f'(x) + 1 = \{(2, 4), (2, 49), (-2, 13), (1, 13)\}$$

$$f(2x) = \{(1, 1), (1, 4), (-2, 2), (0, 4), (-2)\}$$

$$\text{حل) } f - g = \{(2, 2), (1, 4), (2, 2)\}$$

سوال 20

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

$$\Rightarrow \frac{2f}{g} = \{(2, 4), (1, \frac{4}{0}), (2, -2)\} = \{(2, 4), (2, -2)\}$$