

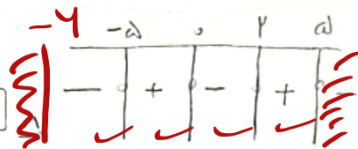
کلاس دوم دخترانه A

تکلیف بهاری ۱۷

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میدانهای

$$x f(x) \geq 0 \begin{cases} x > 0 \rightarrow x=0, x=2 \text{ و } 3 \\ f(x) \geq 0 \begin{cases} x < 0 \rightarrow f(x) \leq 0 \rightarrow [-2, 0] \\ x > 0 \rightarrow f(x) \geq 0 \rightarrow [2, 3] \end{cases} \end{cases}$$



(1)  $D = [-2, 0] \cup [2, 3]$

چون جدول تعیین علامت اشتباه بوده

$\frac{-x}{f(x)} > 0 \quad f(x) \neq 0$

$f(x) = 0 \rightarrow x = 2 \text{ و } 3 \text{ و } -1$

جواب قابل قبول نیست

$f(x) = -1, -1, 1$

$\frac{1}{x-2}$

(2)  $0.5$



$f(x) - 2f(2) = x^2 - 2x + 4 \rightarrow f(2) = 4 - 4 + 4 = 4$

$f(x) - 4 = x^2 - 2x + 4 \rightarrow f(x) = x^2 - 2x + 8$

$f(-2) = 4 + 4 + 8 = 16$

(3)  $0.5$

$v + 2 = 9 \rightarrow f(f(2)) + f(f(1))$

$f(1) = 1 + 2 = 3 \rightarrow f(3) = 9 - 6 + 4 = 7 \rightarrow f(2) = 4 - 4 + 4 = 4$

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

$f(x-1) - f(x) = 4x + 2 \rightarrow x \text{ times } 1 \rightarrow \frac{f(0) - f(1)}{1} = -4 \rightarrow f(x) = ax^2 - bx + 2$   
 $a - b + 2 = -4 \rightarrow a - b = -6$

(4)  $0.5$

$f(\sqrt{3}-1) = \frac{(\sqrt{3}-1)^2 - 1 + 2}{\sqrt{3}-1} = \frac{3 - 2\sqrt{3} + 1 - 1 + 2}{\sqrt{3}-1} = \frac{5 - 2\sqrt{3}}{\sqrt{3}-1}$

$f(x) = \frac{x^2 + 5x + 4}{x^2 + 5x + 2}$

$x - \frac{1}{x} = -3 \rightarrow (x - \frac{1}{x})^2 = 9 \rightarrow x^2 + \frac{1}{x^2} - 2 = 9 \rightarrow x^2 + \frac{1}{x^2} = 11$

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

$f(-3) = \frac{9 + 1}{9} = \frac{10}{9}$

$-\frac{1}{\sqrt{3}} \leq x \leq \frac{1}{\sqrt{3}} \rightarrow g(x) = \sqrt{1-x^2}$   
 الف)  $\frac{9}{g} \rightarrow \left\{ \left( \frac{1}{\sqrt{3}}, \frac{0}{\sqrt{3}} \right), \left( 1, -\frac{1}{\sqrt{3}} \right), \left( 0, \frac{1}{\sqrt{3}} \right), \left( \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}} \right) \right\}$

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

ب)  $\frac{9}{f} \rightarrow \left\{ \left( \frac{1}{\sqrt{3}}, \frac{0}{\sqrt{3}} \right), \left( 1, -\frac{1}{\sqrt{3}} \right), \left( 0, \frac{1}{\sqrt{3}} \right), \left( \frac{1}{\sqrt{3}}, \frac{1}{\sqrt{3}} \right) \right\}$

$$f(x) = \{(2,1), (2,4), (-5,2), (1,-2)\} \quad (9)$$

الف)  $2f(x) \rightarrow \{(2,2), (2,8), (-5,4), (1,-4)\}$

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

ج)  $3f^2(x)+1 \rightarrow \{(2,4), (2,19), (-5,13), (1,13)\}$

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

$$g(x) = \{(1,0), (2,1), (-1,4), (-2,-3), (3,-1)\}$$

$$f(x) = \{(2,3), (2,2), (1,4), (2,1), (2,2)\} \quad (10)$$

الف)  $f-g \rightarrow \{(2,2), (1,4), (2,2)\}$

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