اعتمادی

۱- الف) $\frac{2x-1}{x(x-1)} \leq 0 \Rightarrow (-\infty, 0) \cup [\frac{1}{2}, 1)$

ب) $\dfrac{\frac{-x-3}{x(x+1)}}{\frac{4x+5}{(x-1)(x+1)}} \Rightarrow D_f \Rightarrow \mathbb{R} - \{-2, -1, 0, 1, -\frac{5}{4}\}$

۲- الف) $x = -2, \frac{5}{2} \Rightarrow$ $-\ |\ +\ |\ +$ $\Rightarrow D_f = (-\infty, -2] \cup [\frac{5}{2}, +\infty)$

ب) $x-1 \geq 0 \Rightarrow x \geq 1$

$3 - \sqrt[4]{x-1} \geq 0 \Rightarrow x-1 \leq 81 \Rightarrow x \leq 82 \Big\} \Rightarrow [1, 82]$

۳- $\underbrace{x^2 - x - 2 > 0 \ , \ x^2 - 1 \geq 0}_{(-\infty, -1) \cup (2, +\infty)} \ , \ \sqrt{x^2-1} \neq -1$

۴- $x = 2 \Rightarrow -1 - 2a = 0 \Rightarrow a = -\frac{1}{2}$

$a = \delta = -\frac{1}{2}. = -2 + b \Rightarrow b = \frac{3}{2} \Rightarrow a + b = 1$

۵- $f(x) - x \geq 0$

$f(x) - x = \begin{cases} 3x - 2 & x \geq 1 \\ x + 3 & x < 1 \end{cases} \Big\} \Rightarrow D_f = [-3, +\infty)$

۶- $16a + 16 = 4a - 6 \Rightarrow a = -1/8$

۷- $\left.\begin{matrix} 2 - \sqrt{3} \\ 2 + \sqrt{3} \end{matrix}\right\} \xrightarrow{\text{معکوس}} \Rightarrow f(2+\sqrt{3}) + f(2-\sqrt{3}) = 2f(2+\sqrt{3})$

$\Rightarrow f(2+\sqrt{3}) = 2 + \sqrt{6} \xrightarrow{\times 2} 4 + 2\sqrt{6}$

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$$2f(x)-3f(-x)=4x^2-x \quad \times 2$$

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

$$\Rightarrow -5f(x)=20x^2+x$$

$$\Rightarrow f(x)=-4x^2-\frac{1}{5}x$$

-۹

$$(x+2)f(x)-3xf(x+2)=4x^2-mx+3m-1$$

$$6f(0)=9m-3 \Rightarrow 5m+15=9m-3 \Rightarrow m=\frac{9}{2}$$

$$\Rightarrow 6f(0)=22{,}5+15=37{,}5 \Rightarrow f(0)=6{,}25$$

-۱۰

$$f(-1)+f(-1)=2f(-1)=-18 \Rightarrow f(-1)=-9$$
