

تکلیف ۱

تکلیف شش و شش به هدی کافی است
از دفعه بعدی برای عدد و نفر صفر رد خواهد شد

$$2x^2 + 2x + 1 = y^2 + 4y = 0 \quad 2(x-1)^2 + (y+2)^2 = 0$$

$$x - y + 1 = 11$$

$$2(x^2 - 2x) + y^2 + 4y + 12 = 0 \quad (x-1)^2 + (y+2)^2 = 0$$

$$2(x^2 - 2x + 1) + y^2 + 4y + 9 = 0 \quad \boxed{x=1} \quad \boxed{y=-2}$$

$$x=a \quad a^2 + fa = 2a + a + r \Rightarrow a^2 + a = 2 \rightarrow a(a+1) = 2 \rightarrow a=1$$

$$1+f=0$$

راه حل کامل! $x = -2$

$$2x^2 - b = a + 2x \rightarrow 11 - b = a + 2 \rightarrow 11 - 4 = a + 2 \rightarrow a = 5$$

$$4x - a \geq 0 \quad 4x \geq a \rightarrow x \geq \frac{a}{4}$$

$$b - 2x \geq 0 \quad 2x \leq b \rightarrow x \leq \frac{b}{2}$$

$$\frac{b}{2} = \frac{a}{4} = 2 \rightarrow b = 4 \rightarrow a = 12$$

$$\frac{a}{4} \leq x \leq \frac{b}{2}$$

$$\left(\frac{b}{2}\right)^2 = \frac{b^2}{4} = \frac{a^2}{4}$$

الف) $|x-2| \neq 0 \Rightarrow x \neq 2$

$$\frac{x+1}{|x-2|} \geq 0 \quad x+1 \geq 0 \quad x \geq -1$$

$$D = [-1, 2) \cup (2, +\infty)$$

ب) $[x] - 4 \geq 0 \Rightarrow [x] \geq 4$

$$1 - [x] \geq 0 \Rightarrow [x] \leq 1$$

نتیجه: $(1, 5)$

الف) $\frac{x^2 - x - 6}{x^2 - 12x^2 + 26} \geq 0$

-	+	-	+	-
-2	-1	2	3	+

$$D = (-\infty, -2) \cup (-1, 2) \cup (3, +\infty)$$

ب) $\frac{-x^2 - x - 1}{x^2 - 1} \geq 0$

-	+	-	+	-
-1	0	1	1	+

$$D = (-\infty, -1) \cup (-1, 1) \cup (1, 2) \cup (2, +\infty)$$

الف) $[x] \geq 2 \quad D = (-\infty, 2]$

ب) $\frac{x^2 - 1}{x^2 - 1} \geq 0$

+	0	-	0	+
-1	1	1	1	+

$$D = (-\infty, -1) \cup (-1, 1) \cup (1, 2) \cup (2, +\infty)$$

الف) $\cos x \neq 0, \sin x \neq 0, \tan x \neq 0$

$$D = \mathbb{R} - \left\{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\right\}$$

ب) $1 - \sin^2 x \geq 0$

$$\sin^2 x \leq 1 \Rightarrow \sin x \geq -1$$

$$D = \left[k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}\right]$$

الف) $1 - \log_{\frac{1}{2}} x \geq 0$

$$x - 1 \geq \frac{1}{2} \quad x \geq \frac{3}{2} \rightarrow 0 < \frac{3}{2} < 1$$

$$D = \left[\frac{3}{2}, +\infty\right)$$

ب) $(-2, -1) \cup (1, +\infty)$

$$x^2 - 3x \neq 4 \rightarrow x \neq 4, x \neq -1$$

$$x^2 - 3x \geq 0 \rightarrow x(x-3) \geq 0$$

-	+	-	+
0	3	4	+

$$D = (-\infty, 0) \cup (3, 4) \cup (4, +\infty)$$

$$الف) \quad x^2 - x^3 > 2x$$

$$x^2 - x^3 > 2 \quad -x^3 + x^2 - 2 > 0$$

$$x^2 - x^3 + 2 < 0$$

$$(x - 2)(x - 1)$$

$$D = [1, 2]$$

$$ب) \quad \frac{x^2 + a}{x^2 + F} \in W$$

$$D = \{x \mid x = \frac{-Fx + a}{x^2 - F}, x \in W\}$$

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1/2